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THE

UNITED STATES

Centennial Exhibition

OF

1876,

INCLUDING DESCRIPTIONS OF

The Most Noteworthy Articles to be exhibited

AND THE

ESTABLISHMENTS WHERE THEY ARE MADE;

ALSO,

A BRIEF ACCOUNT OF THE

INTERNATIONAL EXHIBITIONS OF EUROPE.

ILLUSTRATED.

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THE approaching Centennial Celebration of our National Independence, and the International Exhibition of 1876, must attract the attention of every American citizen, and all proper means should be adopted to furnish reliable information concerning the plans and progress of the work. To that end the present volume is issued as the first edition of a work to be followed at short intervals by enlarged editions; comprising what is believed to be information desired by all.

1st.—A history of all former Exhibitions, with views of the Buildings and authentic statistics as to the attendance, receipts, and expenses, of each.

2nd.—An account of the origin and progress of our International Exhibition to the latest date, from official information, with an accurate list of Officers and Directors connected with its management.

3rd.—A description of the buildings erected for the accommodation of articles entered for Exhibition, with elegant illustrations.

4th.—An account of the leading Manufacturers, with descriptions of the articles intended for Exhibition, the processes of their manufacture, and pictorial illustrations of some of the colossal establishments in which these articles are produced.

It is intended to add sketches and notices of prominent establishments as they may offer, each of which will appear in all editions subsequent to that in which they are first inserted.

It is expected to make the work in its enlarged form a permanent contribution to the history of American Manufactures.

It is hoped and believed that the present issue will meet the approbation not only of its patrons but also that of the public.

THE

UNITED STATES INTERNATIONAL EXHIBITION

OF 1876.

THE national importance of the approaching Centennial Exhibition of 1876 renders it very necessary that the public shall be furnished, so far as is possible, with all information relative thereto. Congress, by an official Act, after due consideration of all the circumstances, selected the city of Philadelphia as the most suitable locality for the celebration of an anniversary which is commemorative of our country's birth to freedom. This point settled, the city government and Park Commissioners decided upon appropriating grounds in Fairmount Park for the purpose.

This location is most eligibly situated on the banks of the Schuylkill, and of easy access from all parts of the city of Philadelphia by rail or steamboat. The great through lines of railroad from the Pacific pass directly adjoining the grounds, so that passengers from San Francisco, New Orleans, and Portland can visit the Exhibition without change of cars.

Plans for the necessary buildings were submitted on the 15th of July, 1873; and advantage has been taken of all former experience to secure the most complete representation yet brought

together of the products of the world. So far as the United States are concerned, it is well known that arrangements are being already consummated to bring together on that occasion our whole people, and reasonable estimates fix the number of persons from our own country and from foreign nations who will be present during the Exhibition at not less than 10,000,000.

This need not be a matter of surprise when we consider that *one-fourth* of the population of the United States is comprised within a radius of 250 miles of the city of Philadelphia. The occasion is so thoroughly national that every American citizen, with a true heart in his breast, will use every exertion to be present at the first Centennial Anniversary of his country's existence. As to the Old World, the interest which already lands on our shores thousands every week will be redoubled, and we may well calculate on every steamer from Europe being overcrowded with passengers. The commercial value of this Exhibition to every American cannot be overestimated, and it is to be hoped that each and all will take a personal interest in its success.

The subject of International Exhibitions has been one of great interest in Europe, and the results have been so satisfactory that the most prominent governments have vied with each other in producing the most perfect and complete representation. Believing that the subject will now prove of equal interest to our own people, sketches are given herewith of the origin and progress of the great International Exhibitions of the Old World up to the present time.

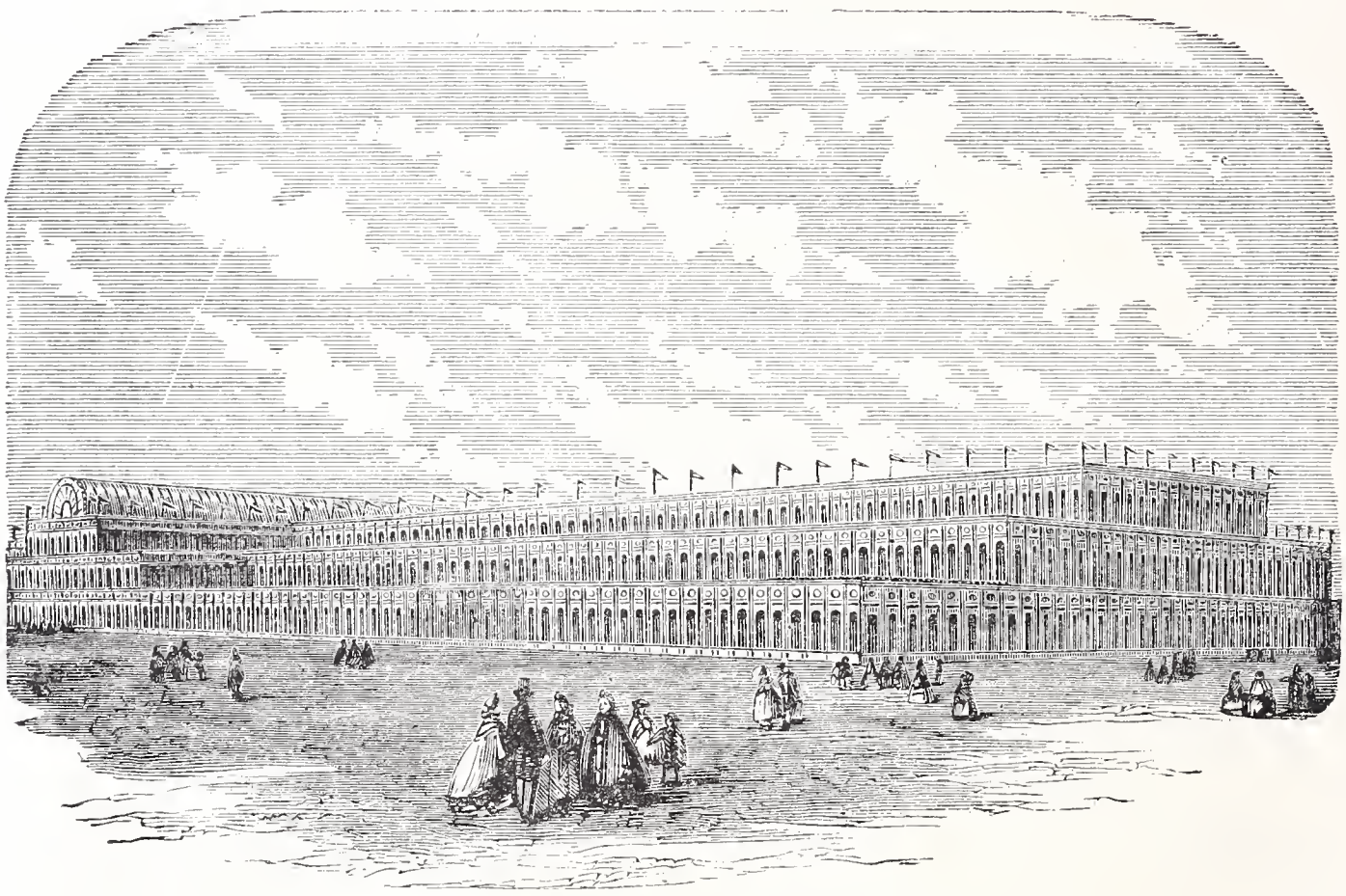
We find some reference in ancient history to large collections of merchants at Tyre and Sidon for purposes of barter and trade, and from those days to the present century there have been in many parts of Europe and Asia annual and semi-annual Fairs, bringing together not only the people of the immediate neighborhood, but both sellers and buyers from long distances—thus being to a certain extent of an International character.

It has been through these Fairs that the people of Great Britain have become acquainted with the merits of tea and coffee on the one hand, while the cotton goods and cutlery of Middle and Northern Europe found their way into the remote provinces of Asia and India. The Fair of Nijni Novogorod is the great annual Fair of Russia, and it has largely contributed to the progress and success of that great nation by the immense exchange of productions which annually takes place. This Fair always opens on the 20th of June, and lasts one month. In 1863 the amount of values which changed hands was estimated at $85,000,000, and the Fair was attended by Chinese, Japanese, Tartars, Persians, etc., etc. At Hurdwar, on the river Ganges, in India, has also been held for many years a Fair of great importance, averaging an attendance of 300,000 annually, and at one of the last meetings it is estimated there were two millions of visitors. This indicates the great attention paid by the nations of the East to International Exhibitions, and the probability of a large attendance from those nations at our Centennial.

In Europe, perhaps, the most important Fair is that held at Leipsic semi-annually, and which lasts twelve days. Here are sold immense quantities of furs from Russia, teas from China, skins from Astrachan, iron from Sweden, and also goods from Paris, Belgium, Manchester, etc. In addition, the famous Book Fairs of Leipsic are well known; sales being made at Fairs of literature in all languages. In Western Europe, France, England, and Ireland, especially, there have been for many years country and local Fairs, noted for the sale of live stock, and for the annual hiring of servants.

In 1756–7, the Society of Arts, in London, offered prizes for the best specimens of work in painting, pottery, carpets, and other classes of art and manufacture. France had even before that date held several Industrial Exhibitions, the First Napoleon, with his usual shrewdness, taking a warm personal interest in their success.

In 1847, a Special Exhibition was held in London of Pottery and various productions in Clay and China, under the patronage of the Society of Arts, of which Prince Albert was then President. At the meetings of this Society originated the first idea of the Great Exhibition in London, 1851. In Dublin, 1850, an Exhibition of Manufactures was inaugurated, which proved a great success, over 300,000 visitors attending it during its opening, and the receipts were over $100,000.

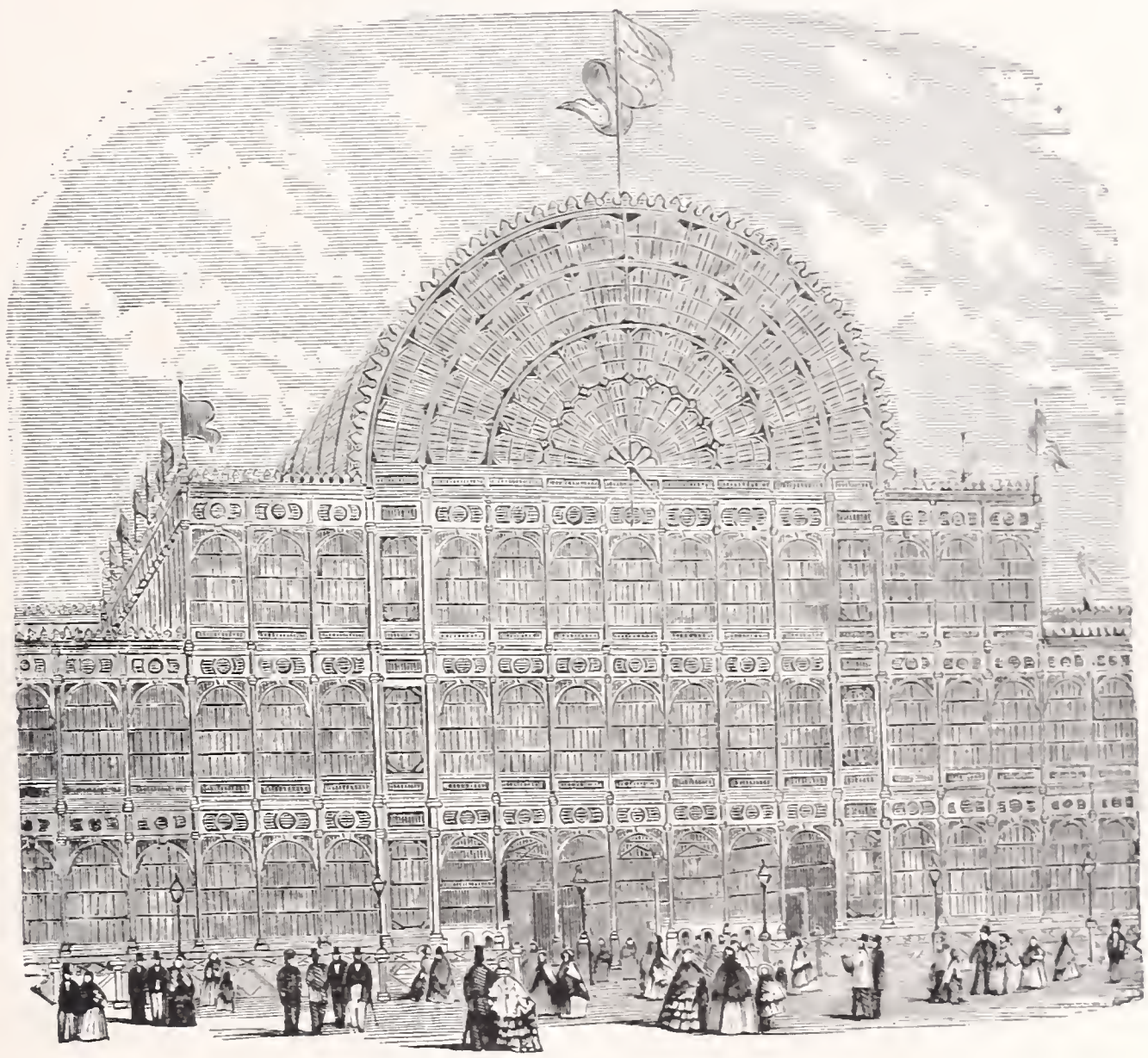


EXHIBITION, 1851.—END VIEW.

THE LONDON INTERNATIONAL EXHIBITION OF 1851.

To Prince Albert is certainly due the credit of originating and completing the First of all International Exhibitions. His own words were that the intention was "to give a true test and a living picture of the point of development at which the whole of mankind had arrived in this great task, and a new starting point from which all nations will be able to direct their further exertions." How well his idea has been carried out, the history

of the past twenty years stands in evidence. Designs for the building were advertised for in regular form, and there were not less than 233 competitors; but, at the last moment, Joseph Paxton, gardener of the Duke of Devonshire, suggested the plan of the Crystal Palace, which resulted in the fairy-like structure of iron and glass erected in Hyde Park in 1851.



EXHIBITION, 1851.—TRANSEPT.

The entire amount of space covered by this building was twenty acres, of which it was estimated that one-half would be occupied by exhibitors, the balance being devoted to passages, etc., etc. The total number of exhibitors was between 15,000 and 16,000, nearly one-half of whom represented Great Britain. As this was the first time that the industries of the United States were presented abroad, it has been thought advis-

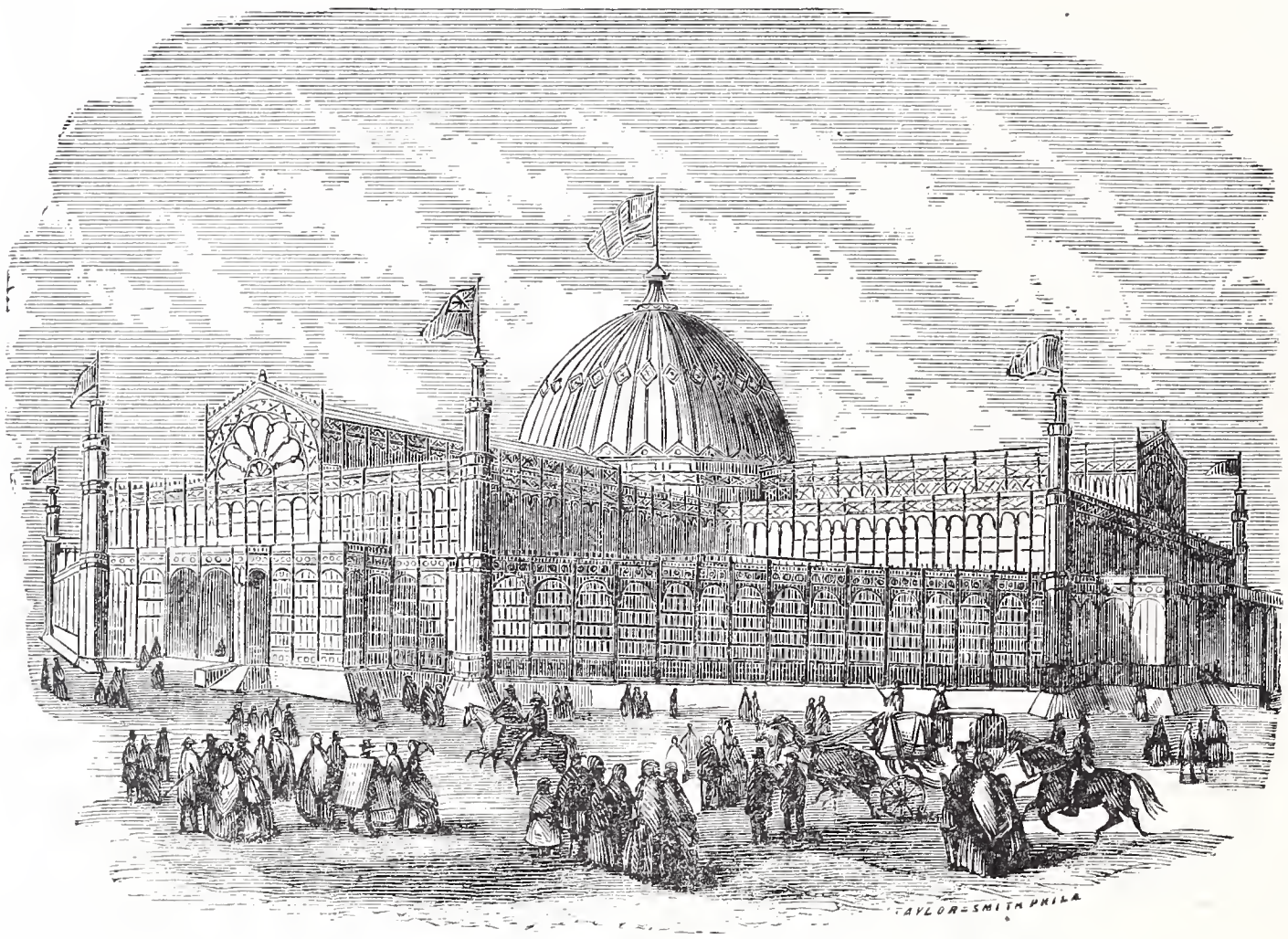
able to give some facts relative to our success as exhibitors. Edward Riddle, Esq., of Boston, was Commissioner from the United States, having control of 599 different articles on exhibition. Our country ranked sixth in the number of exhibitors. Of this number five received the Grand Council Medal, and ninety-five the Prize Medal, this being a large proportion in comparison with other nations. The special result of this Exhibition to American industry was, the introduction of Colt's Fire Arms, India Rubber manufactures, McCormick's Reapers, and American Pianos into Europe, for the first time. It has been estimated that the sales of these articles since have been to the extent of several millions of dollars in value. The total number of visitors during the opening of the Exhibition was 6,039,195; and the largest number on any one day was 109,915. The total number of awards issued by the Commission was 5248, in the shape of Medals and Honorable Awards. The result of this Exhibition was to crowd London with people from all parts of the world, and to leave a large amount of money in Great Britain. The general result was to add to the exchanges of goods all over the world, and to largely increase the commercial relations between nations. It must not be forgotten that it was during this Exhibition the yacht *America* made her famous voyage, and won the International Prize from all competitors.

In preparing for the Exhibition of 1851 every advantage was taken of the mercantile and commercial enterprise of the country, the leading merchants in each city and town forming local committees, which proved of great service. Although not generally known, it is due to a citizen of Philadelphia that the next International Exhibition succeeding this took place in the United States. Mr. John Jay Smith, for many years the Librarian of the Philadelphia Library Company, and a gentleman of literary attainments, was impressed with the idea that the Exhibition of

1851 above referred to could be removed to the United States. With that object in view, he secured letters from the Government and the warm approval of President Taylor, and directions from the State Department for all diplomatic representatives to further his views. Merchants of New York and Philadelphia, including Messrs. Grinnell, Minturn & Co., and Myers & Claghorn, furnished all the financial credit; and, although Mr. Smith naturally favored Philadelphia for the designated place for the Exhibition, New York was ultimately decided upon. On his arrival in England, the project of Mr. Smith was presented in Parliament by Mr. Cobden, and supported by him in a speech at some length. Abbott Lawrence, United States Minister, and Messrs. Baring Brothers took a warm interest in the idea, and Prince Albert himself became deeply interested. Scott Russell, so well known at this day, was then one of the committee conferring with Mr. Smith. The various Continental Governments acceded willingly to the proposed plan, and the projector returned to this country successful. On his arrival here, the United States Government granted to Mr. Smith the use of Governor's Island, near the city of New York; and all arrangements were made to have an International Exhibition suitable to our national position, when the serious illness of the projector threw the business into other hands, the result being the formation of a Stock Company and the erection of a building in Reservoir Square, at that time distant from the built-up portion of the city. This is known as the

NEW YORK INDUSTRIAL EXHIBITION, 1853.

THE organization of this Exhibition was in the hands of inexperienced men, and the result was very unsatisfactory. In the first place, it was not commenced in season; the agents sent abroad were not allowed the time necessary in which to secure the co-operation of other nations; the plans were not perfected; and the administrative and executive forces were not



NEW YORK EXHIBITION, 1853.

large enough to give the work proper superintendence. The formation of local committees was delayed, and thus it did not become a truly National undertaking. At the opening of the Exhibition there was a very large attendance, the President and Cabinet being present. The exhibition of articles from abroad was limited, the following being a complete list:

Great Britain	752	articles.
Germany	639	"
France	356	"
Austria	328	"
Holland	144	"
Italy	219	"
Switzerland	106	"
Other nations	58	"
Total	2602	

As is well known, this building was destroyed by fire some time afterwards. For its purpose it was well designed, and

admirably adapted for a complete view of the whole interior at one glance. While the results of this Exhibition were unsatisfactory so far as financial success was concerned, yet much good was gained in the introduction of many American inventions abroad for the first time, and their subsequent large sale.

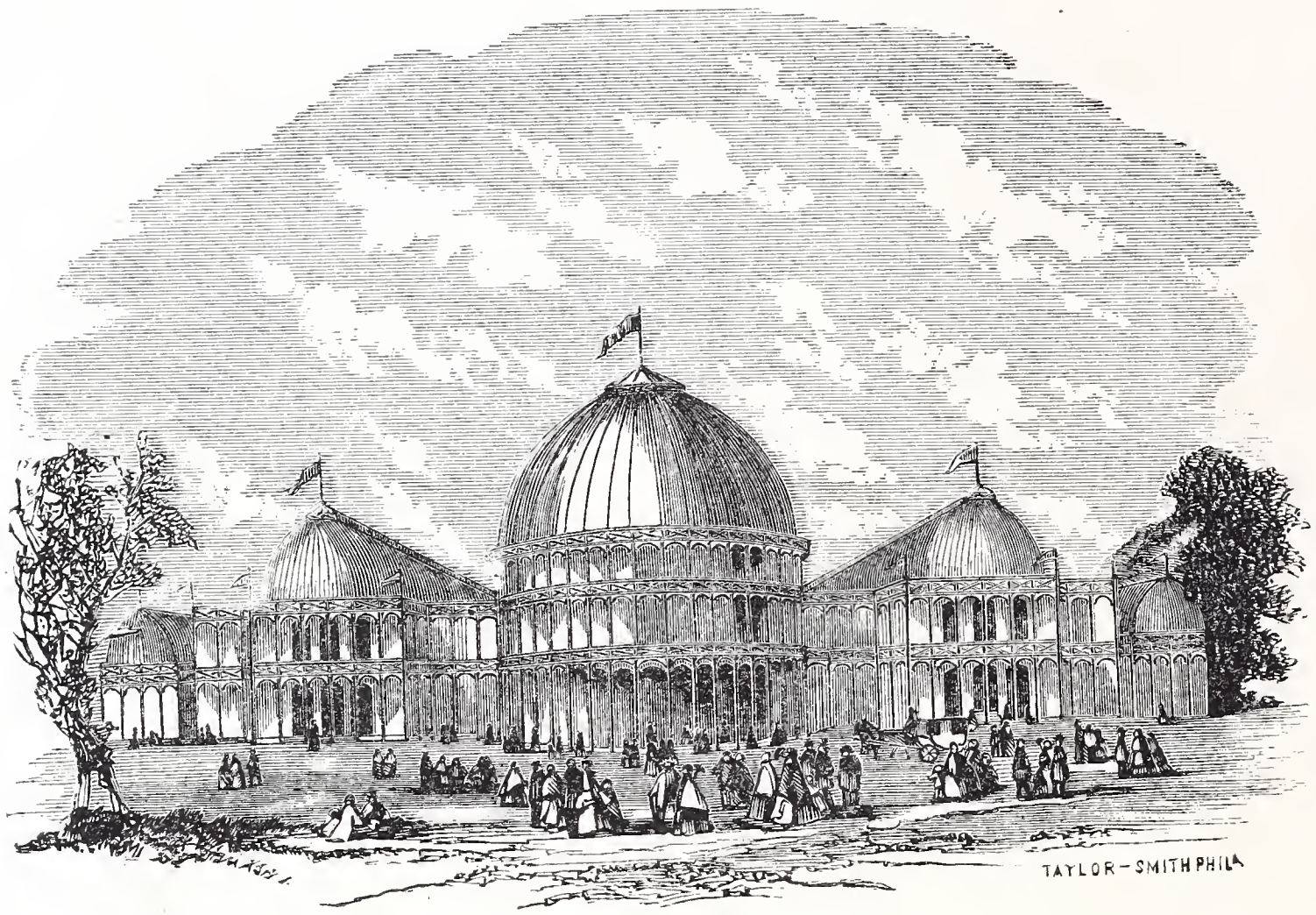
The interest felt in Europe, as to the results of this Exhibition, so far as regarded our own representation, was very great. England sent out the following well-known scientific men as a special committee: Lord Ellesmere, Sir Charles Lyell, George Wallis, Joseph Whitworth, John Wilson, and C. Wentworth Dilke. These gentlemen made voluminous reports, which were published as Parliamentary papers in 1854.

The following is an extract from the General Report: "There can be little doubt, that in nearly all essential points, the Exhibition will prove, to the intelligent and industrious artisans and enterprizing manufacturers of America, much more of an instructor in what has to be done, than an exposition of what has been done by them; for the latter can be alone fairly judged of in the manufactories."

It remains for us, in 1876, to prove by our personal efforts, not only that a satisfactory result has been arrived at, since 1853, but that it shall be made clear and distinct at the Centennial Exhibition of 1876, so that all foreigners may appreciate.

Mr. Wallis, of this committee, visited our leading manufactories, and reports as follows: "Certainly the one thing which, more than any other, strikes the visitor to the seats of industrial skill in the United States, is the ingenuity, the indomitable energy and perseverance displayed, in overcoming the early difficulties which must have stood in the way of any thing like successful progress at the outset."

It is to be hoped, that Mr. Wallis may have an opportunity of making another report on the progress of our industries since 1853.

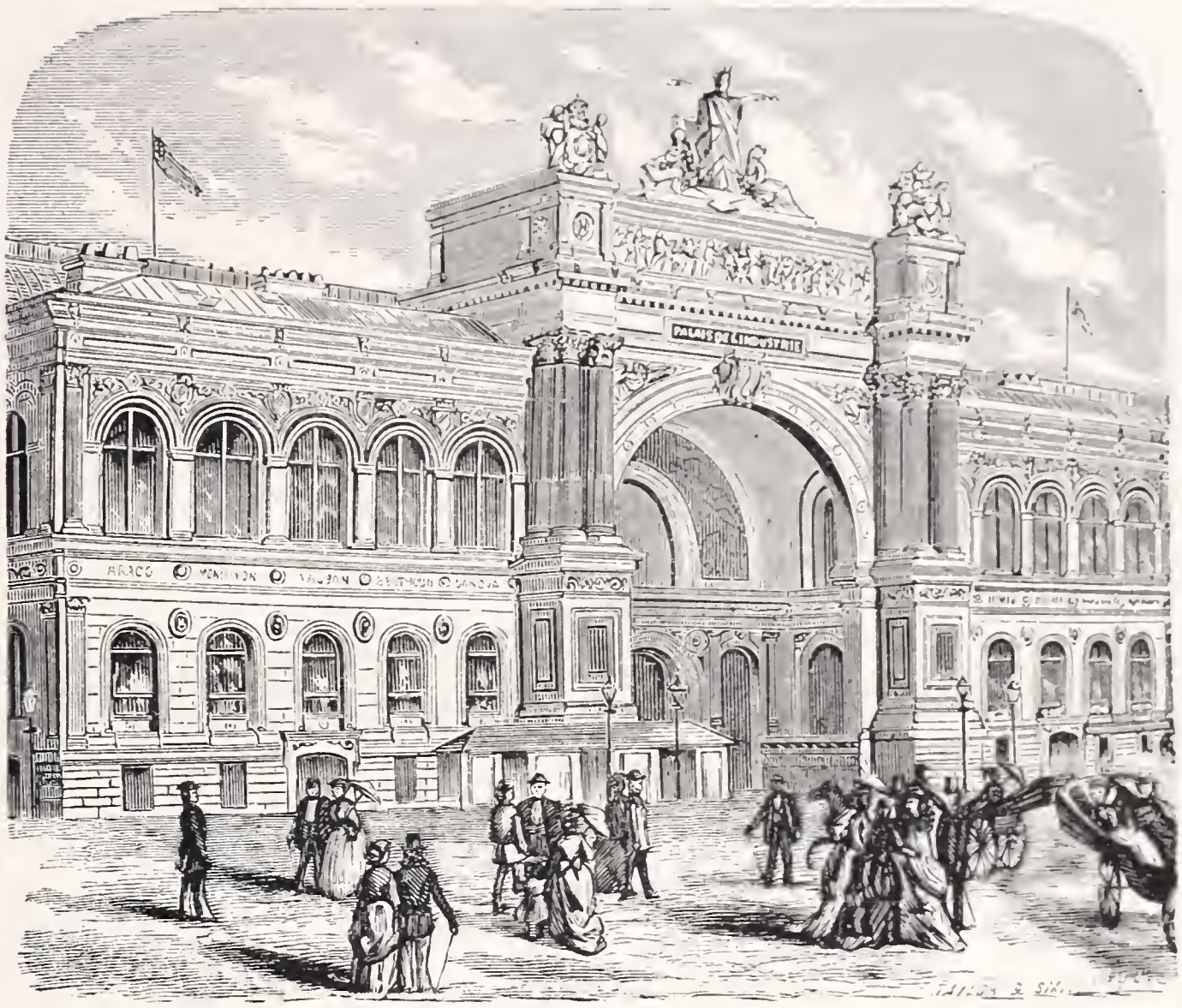


DUBLIN EXHIBITION, 1853.

This Exhibition was specially undertaken in the interest of the producers and manufacturers of Ireland; and it proved very successful. Mr. Dargan, a prominent citizen of Dublin, contributed largely to its success.

The Exhibition was opened with an attendance of 12,000 visitors; and during its progress, it was visited by the Queen and Prince Albert. Its specialty was the magnificent collection of Paintings and Statuary, loaned by prominent noblemen and citizens.

The total number of visitors was 956,295; and the result was most satisfactory to the citizens of Dublin, as it gave a great impetus to the retail trade of that city.



PARIS EXHIBITION, 1855.

THE main building for this International Exhibition was made permanent, and is well known to all visitors to Paris as the Palace of Industry. In addition, there were also used a long, narrow building on the bank of the Seine, specially adapted for machinery; and still another separate building, for the collection of Fine Arts. There was, in addition, the collection of Crown Jewels, on exhibition in the Rotunda, another edifice now used for Panoramic Views.

This work was originally undertaken as a commercial speculation; but was eventually taken in charge by the Government, and Prince Napoleon appointed President of the Board of Imperial Commissioners. The total space covered was about 152,000 square metres, or 1,770,000 square feet.

EXHIBITORS.

The following countries were represented at the Paris Exhibition of 1855:

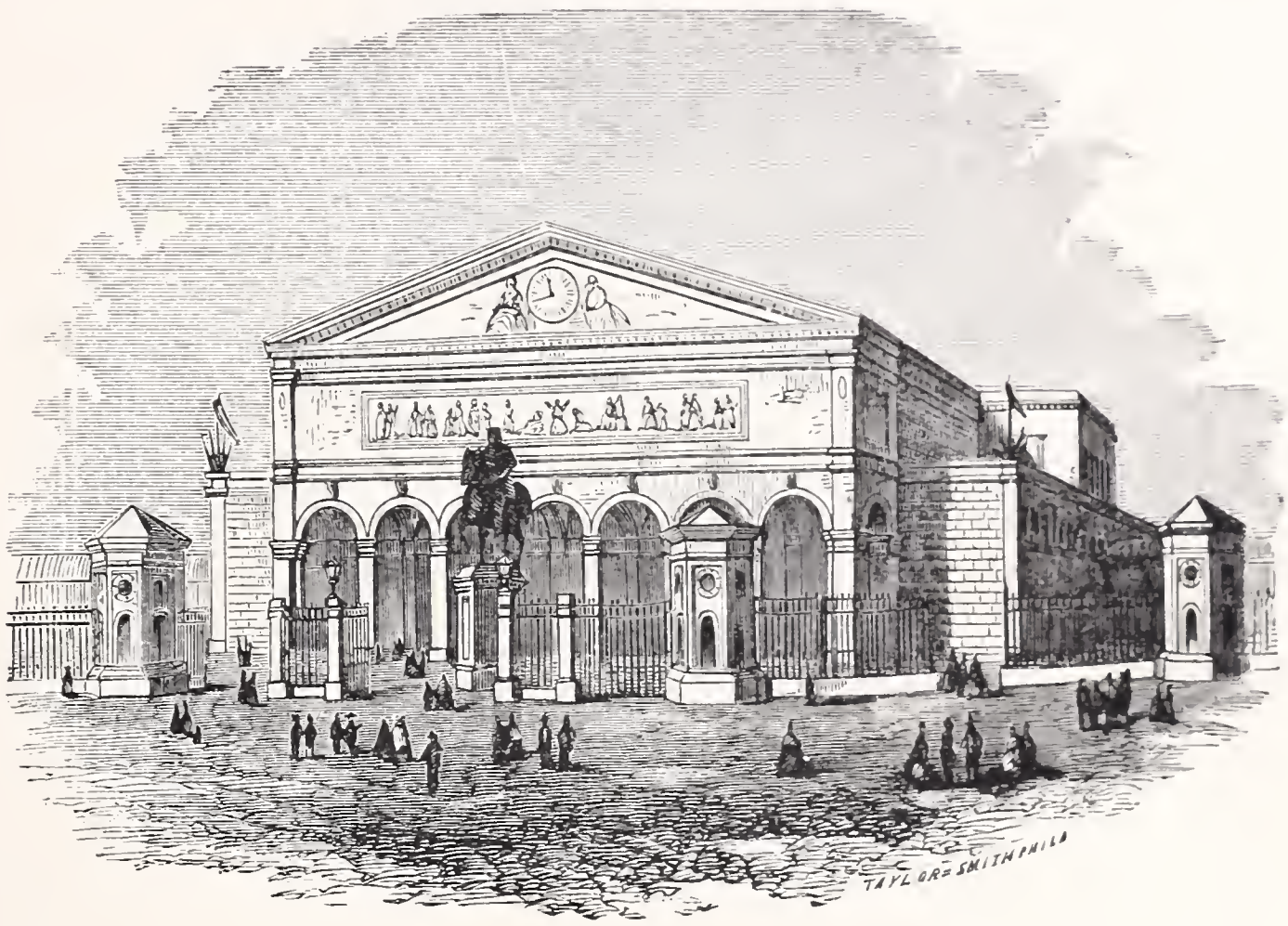
COUNTRIES.	*Exhibitors.*
France and colonies	10,914
Great Britain and colonies	3,269
Prussia	1,319
Austria	1,298
Belgium	687
Spain	569
Portugal	443
Sweden	418
Switzerland	408
United States	131
All other countries	2,223
Total	21,679

This Exhibition was opened by the Emperor in person, on the 15th of May; but there was lack of completeness in the arrangements, and the delay was so great as to largely affect the receipts. The total number of visitors was 5,162,330, and the most on any one day was 123,017.

Paris was crowded during the period of the Exhibition, an addition of 160,000 being made to the population from foreigners alone; the various departments of France sending, in addition, some 350,000 visitors. The United States was well represented; Messrs. Maunsell B. Field and W. J. Valentine being Commissioners-General, assisted in the Fine Arts Department by Marshall Woods, Esq. Of the 131 Exhibitors from the United States, the proportion of rewards was greater than to any other country; as we received two Grand Medals of Honor, awarded to McCormick for his Reaper, and to Goodyear for his improvements in the treatment of India Rubber; and in addition, there were granted 3 Medals of Honor, 17 First-class Medals, 28 Second-class Medals, and 30 Honorable Mentions, accompanied by a Diploma. Of the Grand Medals of Honor, Great Britain

received but one, although represented by 1549 Exhibitors. The Government of Great Britain expended nearly $200,000 in its own Department at this Exhibition.

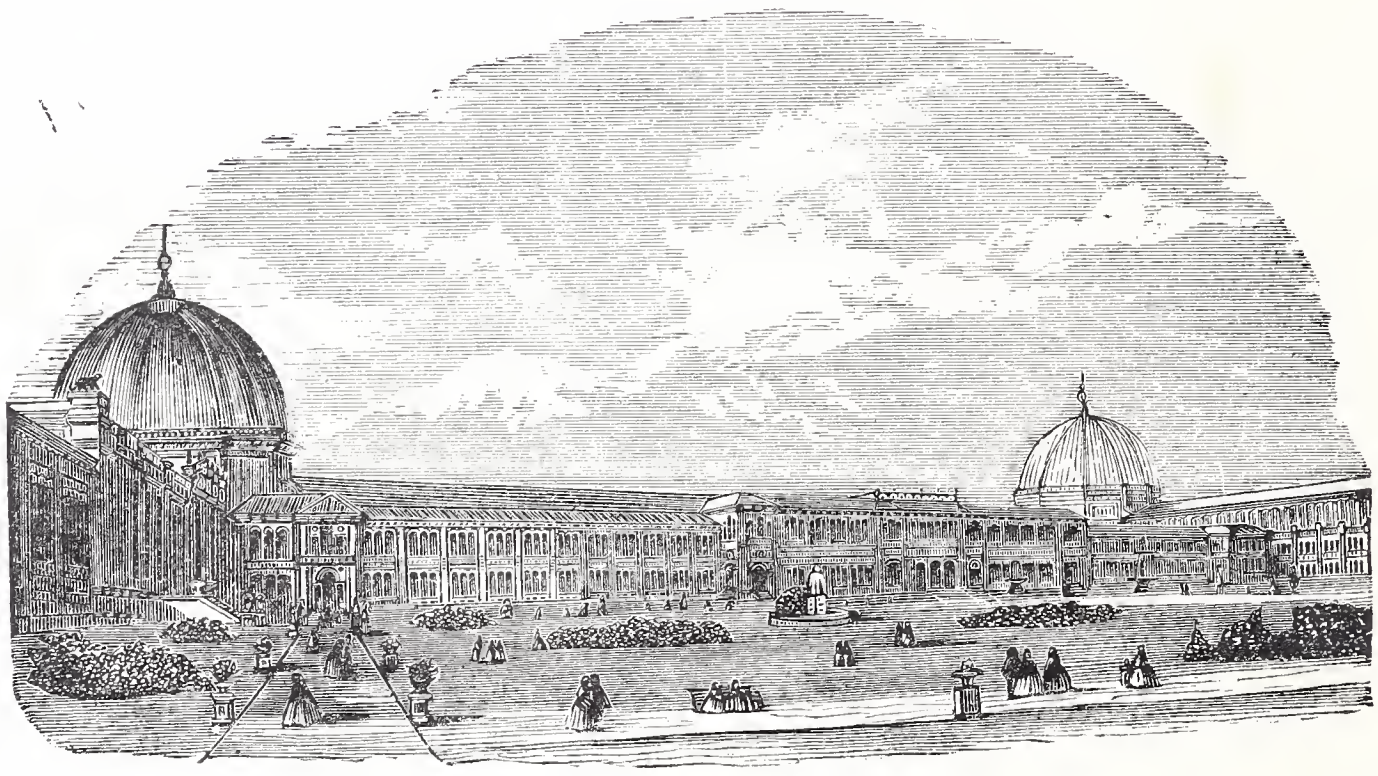
It remained open 200 days, and the total receipts were about $650,000.



FLORENCE EXHIBITION, 1861.

THE first Italian Exhibition of Art and Industry was opened at Florence in September, 1861. It proved to be a great success, especially in bringing forward the more prominent branches of Italian industry. Silk, as is well known, is the leading article, both of production and manufacture, and it was fully represented. The silk growers of upper Italy bear away the palm from all their rivals in the quality of raw silk, both white and yellow. Gold and silver brocaded silks, for church vestments, indicated a far advanced state in this branch of industry. Linens, damasks for table use, and ribbons, were well represented. In coral ornaments of all styles, Naples was pre-eminent. The impression

made on the visitor was that Italy, from her own arts and manufactures, is capable of supplying, more or less perfectly, the requirements of an enlightened people. The question of silk culture has already been most satisfactorily tested in the United States, and could we secure the surplus skilled labor of Italy and introduce it into such sections of our own country as are peculiarly fitted by climate and soil for such a purpose, what a positive advantage it would be! The thorough introduction of silk of native growth and manufacture would lower our imports immensely.



View of Building from the Horticultural Gardens, 1862.

SECOND INTERNATIONAL EXHIBITION, LONDON, 1862.

In 1862 the second International Exhibition was held in London. Owing to the domestic difficulties raging in the United States, comparatively little interest was felt here, although we were to a certain extent represented.

The opening day of the Exhibition for 1862 was attended by 30,000 people. It was a matter of great regret that Prince Albert, who had recently deceased, could not have been present to have witnessed the great success of an enterprise in the origination of which he was so deeply interested. The Exhibi-

tion was opened by the Duke of Cambridge, and the musical services were performed by 2000 voices and a band of 400 instruments—the poet Tennyson preparing an ode for the occasion. Great pains were taken to test every portion of the building by the moving of large bodies of troops, and then starting them on a quick step over the various galleries and platforms. During the Exhibition the electric light was used to great advantage. Among the prominent visitors were the Prince Napoleon, the Japanese Commissioners, and the Viceroy of Egypt. All the arrangements and details for the Exhibition proved very satisfactory, and every possible attention was given to the comfort of visitors. A Post-office was established, through which passed, the first three months, 211,500 letters. Also a Money-order office, and a Bank, where all the wages could be paid. The Police Department was composed of 500 men, who were specially detailed for the service. They had in charge the office for lost property, where everything found was left. The total number of assistants in the Exhibition was estimated at 2000. A Reading Room was established for the use of visitors, supplied with every facility for telegraphing and writing, and furnished with directories, maps, railway time-tables, address-books, etc. As canes and umbrellas were not allowed in the building, a special room was put aside for that purpose. A Restaurant was authorized, where a good cold lunch could be had for 20 cents, and a dinner from 50 cents to $1.25. By actual test it was found that 50,000 people could be dispersed in an hour. One great difficulty, which should be avoided hereafter, was the want of shelter, outside the building, from rain. This defect will doubtless be remedied at the Centennial Exhibition of 1876 by a covered way or platform. Musical exhibitions were given every week, and a constant series of attractive novelties. The total number of visitors was 6,225,000. In its organization the most careful steps were taken to insure general co-operation in Great Britain; 297 district com-

mittees and 450 local committees were appointed, also special travelling commissioners to perfect organizations in all sections of the kingdom. In the construction of the Building there were used 700,000 bricks, 12,000 tons of iron, and 24 tons of glass, this latter covering twelve and three-quarters acres. The main buildings for this Exhibition covered about 17 acres, but with the addition of the annexes east and west of the Horticultural Gardens, the whole area covered upwards of 24 acres. The structure was for the most part of a strong and permanent character, although it has since been destroyed. The total number of exhibitors at the International Exhibition of 1862 was 28,653, divided as follows:

Great Britain	5,415
France	3,204
British Colonies	3,072
Italy	2,099
Spain	1,643
Austria	1,413
Portugal	1,370
French Colonies	826
Belgium	799
Russia	724
Sweden	511
Holland	348
Greece	296
Denmark	285
Brazil	230
Norway	216
Hanse Towns	187
United States	132
South American Republics	110
Rome	76
Mecklenburgh	55
China and Japan	38
Africa	17
Swiss Counties	10

The Exhibition was opened May 1st and closed November 15th, being open for visitors 171 days, during which time it was

visited by 6,225,000 persons, and the gross receipts were $2,298,155.

Although the United States was represented by only 132 articles, yet it received the largest number of awards in proportion, of any nation represented, viz.: 56 Medals, and 29 Diplomas. When it is borne in mind that this was in 1862, when our country was involved in civil war, and that the American section of the Exhibition was entirely controlled by private funds, the result is certainly most creditable.

The special objects of interest from the United States at the Exhibition of 1862 were McCormick's Reapers, Sickles' Steam Steering Apparatus, Ericsson's Caloric Engine, Sewing Machines, Pianos, Maizena, or Corn Starch, Flour, Street Railway Cars, Steam Fire Engines, etc., etc.; Axes, Ploughs, Model Houses, Shirtings and Sheetings. A complete list of awards is given herewith:

INTERNATIONAL EXHIBITION OF 1862: LONDON.

REPORTS OF THE JURIES.

AWARDS TO THE UNITED STATES OF AMERICA.

CLASS I.—MINING, ETC.

Medal.—Claudet, F. For his collection illustrating the newly explored mineral wealth of Nevada: exhibited by Mosheimer.

Honor. mention.—New Jersey Zinc Co. Spiegel Iron from Franklinite.

——— Meads, T. Native copper and silver from Lake Superior.

CLASS II.—CHEMICAL PRODUCTS.

Medal.—Glencove Starch Co. Starch.

——— Hotchkiss, H. G. Wintergreen oil.

——— Kingsford. Starch.

——— Pease, S. F. Petroleum, benzol from petroleum and coal tar for illumination and lubrication.

——— Philadelphia College of Pharmacy. Fine collection of North American vegetable drugs and preparations.

CLASS III.—AGRICULTURAL PRODUCE.

Medal.—Glencove Starch Co. Maizena, or corn starch for food.
——— Hecker Brothers. Flour: excellence of quality.
Honor. mention.—Stebbins & Co. Flour: goodness.
——— Waddell, J. Indian corn: goodness.

CLASS IV.—OILS, ANIMAL SUBSTANCES, ETC., VEGETABLE SUBSTANCES, IN MANUFACTURES.

Medal.—Wilkins & Co. Collection of bristles.
——— Blanchard & Brown. Wooden wheel spokes, by machinery.
——— Glencove Co. Maizena, indian corn meal.
——— Pease, F. S. Ten kinds of oil: lard.
——— Hotchkiss. Very fine specimens of American essential oils.
Honor. mention.—Hale, A. Essence of peppermint.

CLASS VI.—CARRIAGES.

Medal.—Brewster & Co. Phaeton of light construction, good workmanship, especially in varnish and leather work.

CLASS VII.—MACHINERY FOR SPINNING AND WEAVING, ETC.

Medal.—Howe Sewing Machine Co. Collection of sewing machines.
——— Smith, A. Loom for weaving tufted carpet.
——— Wheeler & Wilson. Circular-hook sewing machine.
Honor. mention.—Bigelow, for Goodwin. Machines for sewing boots and shoes, etc.
——— Sanborn, G. H. Ingenuity of cord and rope making machine.
——— Singer, J. M. His collection of well constructed sewing machines.
——— Wilcox & Gibbs. Improvements in the construction of their sewing machines.
Medal.—Wemple, P. H., of New York. Machine with eighteen adjustable drills.
——— Conroy, E., of Boston. For a cork cutting machine.
Honor. mention.—Blake Brothers, New Haven. Stone-breaking machine.
Medal.—Richards, W. D., Boston. Improved boot and shoe machinery.
Honor. mention.—Degner, F. O. For a printing press.
——— Sanford & Mallory. For a scutching machine for taking the fibres from the leaves of aloes.

CLASS VIII.—MACHINERY IN GENERAL.

Medal.—Allen, J. F. As inventor of the slide valves, valve gear, and expansive gear: exhibited by C. T. Porter.
——— Andrews, W. D. Centrifugal pump and engines.
——— Blake Brothers. Stone-breaking machine.
——— Conroy, E. Cork-cutting machine.
——— Ericsson, Capt. John. As inventor of engines exhibited.
——— Gibson, A. G. Improved carriage coupling.
——— Gore, J. C., Jr. Belt-shifter.

CLASS VIII.—Continued.

Medal.—Goddard, C. L. Mestizo burring-picker.
——— Hausbrow, T. Pumps, design and workmanship.
——— Kershaw & Colvin. Milking-machine.
——— Lee & Larned. Steam fire-engine.
——— Near, C. Dynamometer, good arrangement.
——— Parker, D. Washing machine.
——— Pesant Brothers. Ericsson's hot-air engine.
——— Porter, C. F. Invention of governors.
——— Richards. As inventor of the indicator exhibited by C. F. Porter.
——— Ross, J. Conical burr mill-stones.
——— Steele, H. Steam pump.
——— Wilcox. Good arrangement and practical utility of the hot-air engine of which he is inventor.
——— Worthington, R. H. Steam pump.

Honor. mention.—Dennison, C. H. Wilcox's hot-air engine.
——— Dickinson, John. Diamond mill-dress.
——— Eckoll, J. J. Combination press and compress.
——— Foote, A. M. Lock umbrella stand.
——— Packer, H. H. Ratchet drill.
——— Walcott. Button-hole cutters.
——— Warker & Eppenstein. Portable mineral and soda-water apparatus.
——— Wentworth & Jarvis. Windmill, water elevator, and regulator of power.

CLASS IX.—AGRICULTURAL IMPLEMENTS AND MACHINES.

Medal.—Batchelor & Son. Hand tools.
——— Blanchard & Brown. Cotton-planter.
——— Dane, J. F. & W. Steel ploughs.
——— Douglas Axe Co. Forest tools.
——— McCormick, C. H. Reaping machine.
——— Wood, W. A. Combined reaper and mower.

Honor. mention.—Kershaw & Colvin. Cow-milking apparatus.
——— Kirby & Osborne. Reaper and mower.
——— Levi, A. Hay-elevator.
——— Rice, R. Mop.
——— Russel & Tremain. Reaping and mowing machine.

CLASS XI.—MILITARY, ENGINEERING, ETC.

Medal.—Colt, S. Revolving arms.

CLASS XII.—NAVAL ARCHITECTURE.

Medal.—Sickels, F. E. Steam steering apparatus.
——— Ward, W. H. Night signal telegraph.

CLASS XIII.—PHILOSOPHICAL INSTRUMENTS AND PROCESSES FOR.

Medal.—Darling & Schwartz. Steel scales and straight-edges.

CLASS XIV.—PHOTOGRAPHY.

Honor. mention.—Dexter & Co. Series of busts of Governors of United States of America.

CLASS XVII.—SURGICAL INSTRUMENTS.

Medal.—Bates, R. Instrument for relief of stammering.

CLASS XXI.—WOOLLEN AND WORSTED.

Honor. mention.—Manchester (New Hampshire) Print Works. Delaines and mixed fabrics, and cheapness.

CLASS XXIII.—WOVEN, FELTED, ETC., FABRICS AS SPECIMENS OF PRINTING OR DYEING.

Medal.—Manchester (New Hampshire) Print Works. Fine collection of printed fabrics.

CLASS XXV.—FUR, FEATHERS, HAIR.

Honor. mention.—Wilkins, V. & Co. Excellence of curled horse hair.

CLASS XXVII.—ARTICLES OF CLOTHING.

Honor. mention.—Manchester (New Hampshire) Print Works. Woollen hosiery.

CLASS XXVIII.—PAPER, STATIONERY, PRINTING.

Medal.—American Bank Note Co. Variety and excellence of their security bills.

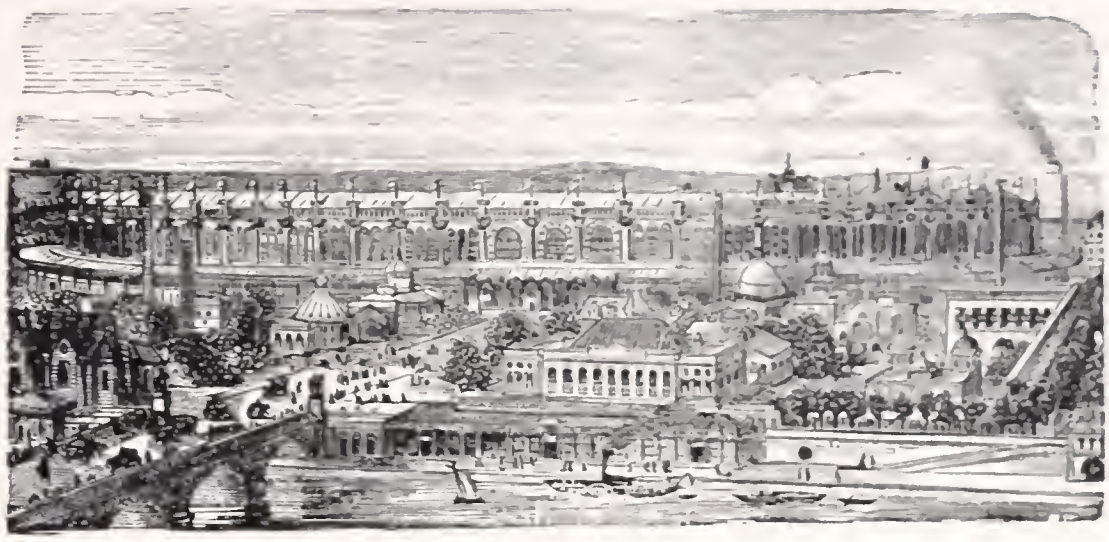
——— Saxton. New process for sealing documents.

——— Sweet, S. Process for producing blocks for printing.

CLASS XXXII.—STEEL.

Medal.—Blackwell, W. Samples of tailors' shears.

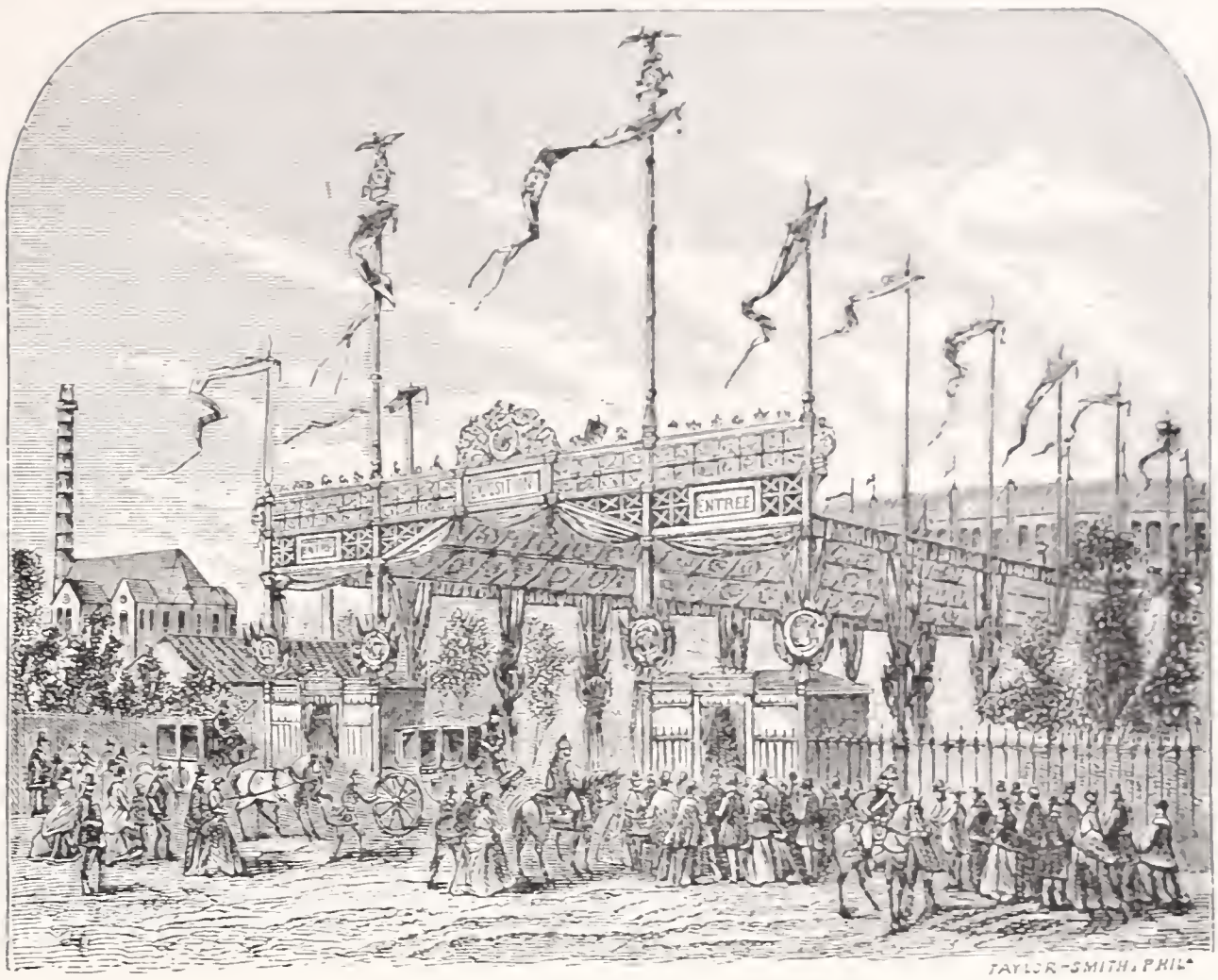
——— Douglas Axe Co. Collection of edge tools.



THE PARIS EXHIBITION OF 1867.

THERE is no doubt but that the French Government has in every sense succeeded so far as regards the completeness of the International Exhibition. With that shrewd liberality so characteristic of the nation, no expense was spared to make Paris as attractive as possible. The plans of the Exhibition grounds were arranged upon a scale to admit not only of an attractive representation of the articles to be exhibited, but also to allow to all foreign nations sufficient space in which to erect buildings as distinctive evidences of national architecture. Thus the Viceroy of Egypt erected a Palace and a *fac simile* of an old Egyptian Temple; the Sultan of Turkey, a Mosque; Greece, a Classical Art Gallery; Russia, a Stable; France, an Emperor's Pavilion and Gothic Chapel; England, a Church; and the United States, a School-House. The Champ de Mars, selected for the Exhibition grounds, bears the same relative position to Paris as the Fairmount Park grounds to Philadelphia. In both instances, the Exhibition was on one side of a river, easily reached by steamboats, railroad and horse cars; and owing to the great number and ease of management of these accommodations, very little difficulty was experienced. The grounds themselves covered half a million square yards, of which 160,000 were within the walls of the building proper. For this building

10,000 tons of iron were used, and 15,000,000 holes punched and riveted. The exact length of the building was 1580 feet, and its width 1214, with an open garden in the centre occupying 540 by 170 feet. The building was arranged in eight elliptical galleries, and intersected by sixteen transversal avenues, each about 500 feet long, and named as streets in compliment to the different nations. On the outside of the building, as well as in the centre garden, fountains were arranged, throwing water to a great height. The restaurants of all countries were on the outer circle of the building, and were most attractive to the public, as one could breakfast in China, dine in Italy, and sup in Paris. There were also workmen of various nationalities engaged in their respective handicrafts,—the Algerines working on Slippers, the Germans making Pipes, the Dutch polishing Diamonds, and Parisians engaged in making Gloves, Boots and Shoes, etc., etc. One of the principal attractions, and which led to a great increase in the visitors to Paris and France during the Exhibition, was the number of distinguished guests who received the hospitality of the Emperor. Among these may be named the Sultan of Turkey, Prince of Wales, King and Queen of Belgium, Emperor of Russia, King of Prussia, Viceroy of Egypt, etc., etc. The special attractiveness of the great resources of the United States will doubtless lead to visits from many of the most important personages of the countries of Europe, and in addition those of the various Eastern nations with whom our Government is likely to be brought into close commercial relations. The opening of the French Exhibition, although preparations were commenced three years in advance, was greatly delayed by various causes, and it was not fairly in working order until after two months had elapsed. Thus a very heavy loss was sustained, and another warning held up for our guidance. The general management of the Paris Exhibition was most creditable, the French conception of detail being per-



MAIN ENTRANCE TO PARIS EXHIBITION.

fect. There were on duty within the grounds 603 policemen and 65 firemen. The Post-Office in the building received and mailed 797,602 letters and documents; and 23,338 telegrams passed through the appropriate bureau. The total number of entrances was estimated at 15,000,000; being actually a representation of about 10,000,000 separate individuals, and an average of 70,000 per day during the entire opening of the Exhibition. The exact weight of all the articles sent in to the building was estimated at 22,224 tons, arriving by all the various routes. The Agricultural Department of the Paris Exhibition was held on the Island of Billancourt, some nine miles distant from the city. Fortunately for the United States Centennial Exhibition, grounds have been secured within the immediate vicinity of the Fairmount Park and of the city of Philadelphia. In the Agricultural Department at Paris were exhibited 1366 machines of

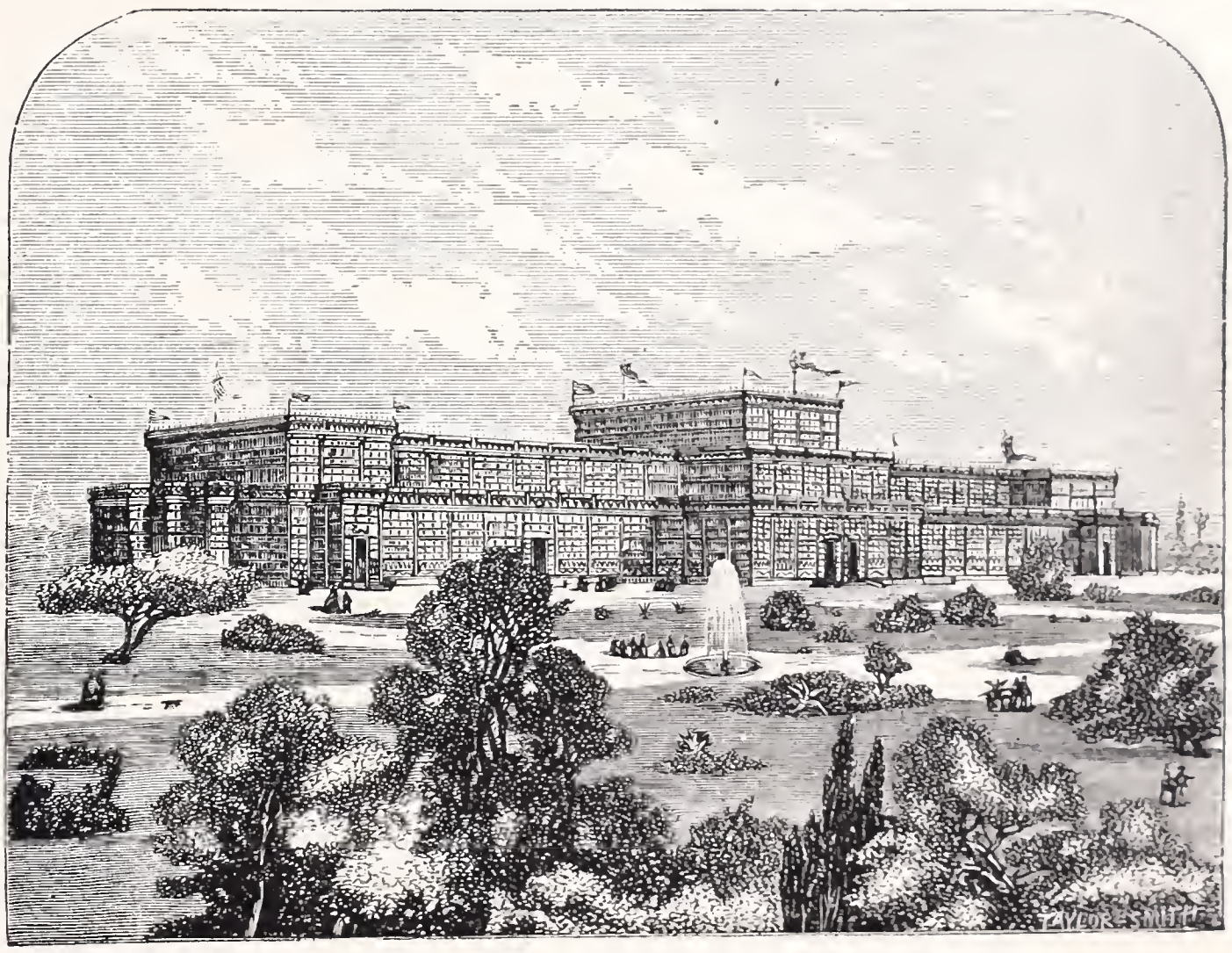
various kinds, 3773 animals, and 420 entries in the Horticultural Department. A grand prize was offered for the best poem and the best cantata for the opening day. The victorious competitor received the Gold Medal and 1000 francs; also another medal for the music composed by him. The transportation of visitors was managed under the direction of the police, and the public were carried *to and from*, as follows:

171 Omnibuses carried	.....	7,169,606
5580 Public Hacks "	.....	1,486,000
Railroads "	.....	1,914,969
Steamboats "	.....	2,787,620
Private Vehicles "	.....	2,328,000
		15,686,195

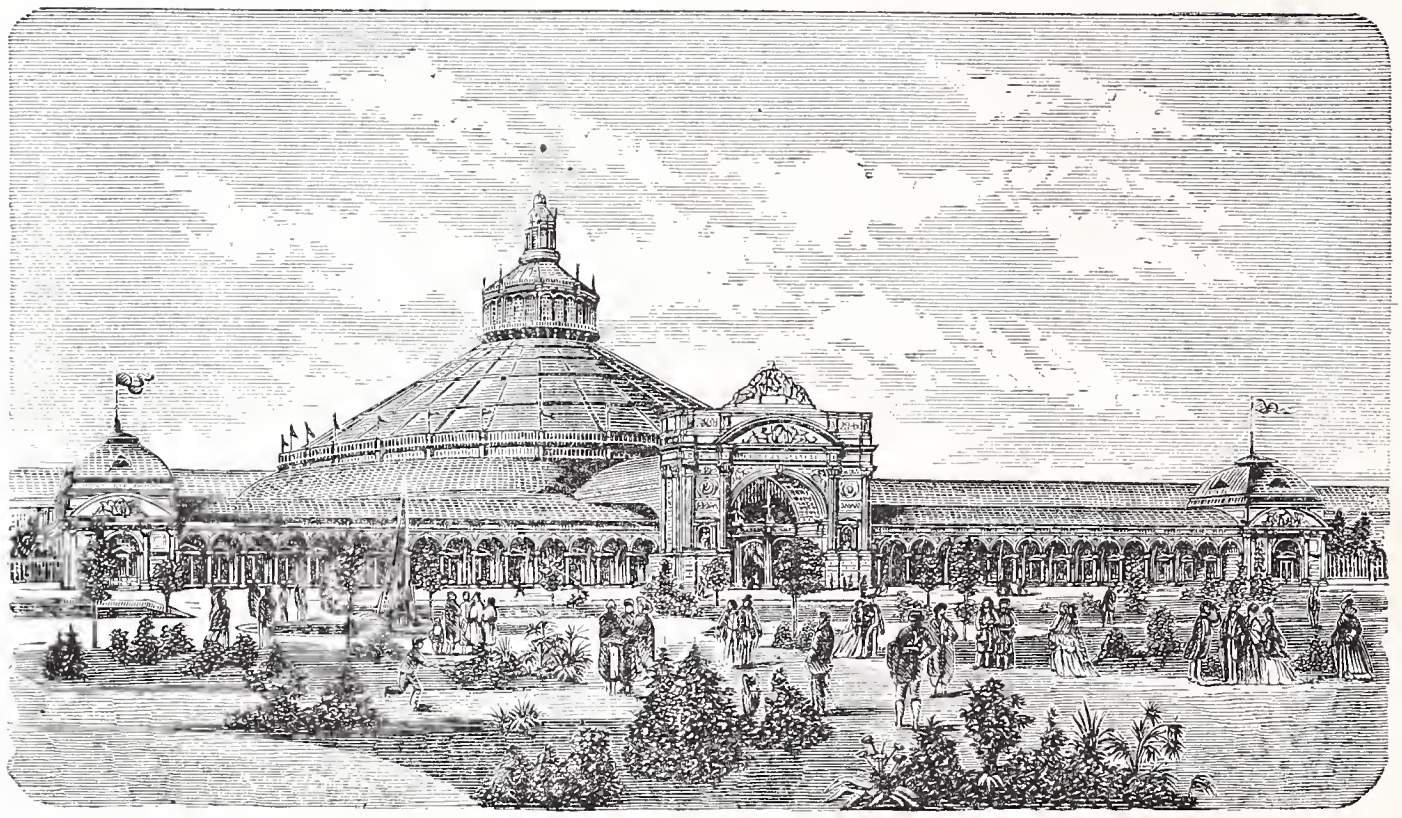
Leaving for those on foot over 7,000,000, or about an equal number.

The total number of exhibitors was estimated at 50,225. Of this number the United States was represented by 717, to whom were awarded 5 Grand Prizes, 1 Artist's Medal, 18 Gold Medals, 76 Silver Medals, 98 Bronze Medals, and 93 Honorable Mentions,—a very large proportion of prizes to the number of articles exhibited, and exceeding in proportion those exhibited by any other nation. These prizes were distributed by the Emperor in person, and on the occasion a grand ceremony took place in the Palace of Industry, on the Champs Elysees, witnessed by over 100,000 people. Among the many interesting articles in the American Department may be mentioned the Corliss Engine, Herring's Safes, Fairbank's Scales, the various patterns of Sewing Machines, McCormick's Reapers, Pianos, and Breech-Loading Small Arms. So far as information has been obtained, all of these articles have secured a largely increased sale in Europe from their presentation at this Exhibition. The Government of the United States appointed a number of Commissioners to the Paris Exhibition; and the result of their

labors has appeared in a series of Reports, published by the Government, in seven octavo volumes. The great value of these Reports has been recognized by every industry represented; and the expenses incurred by the Government have been covered more than one hundred fold by the profits on American goods sold to Europe from the results of this Exhibition. Now that it is our own turn to exhibit in full the resources of our country, no American should leave a stone unturned that would lead to the perfectness of such an Exhibition.

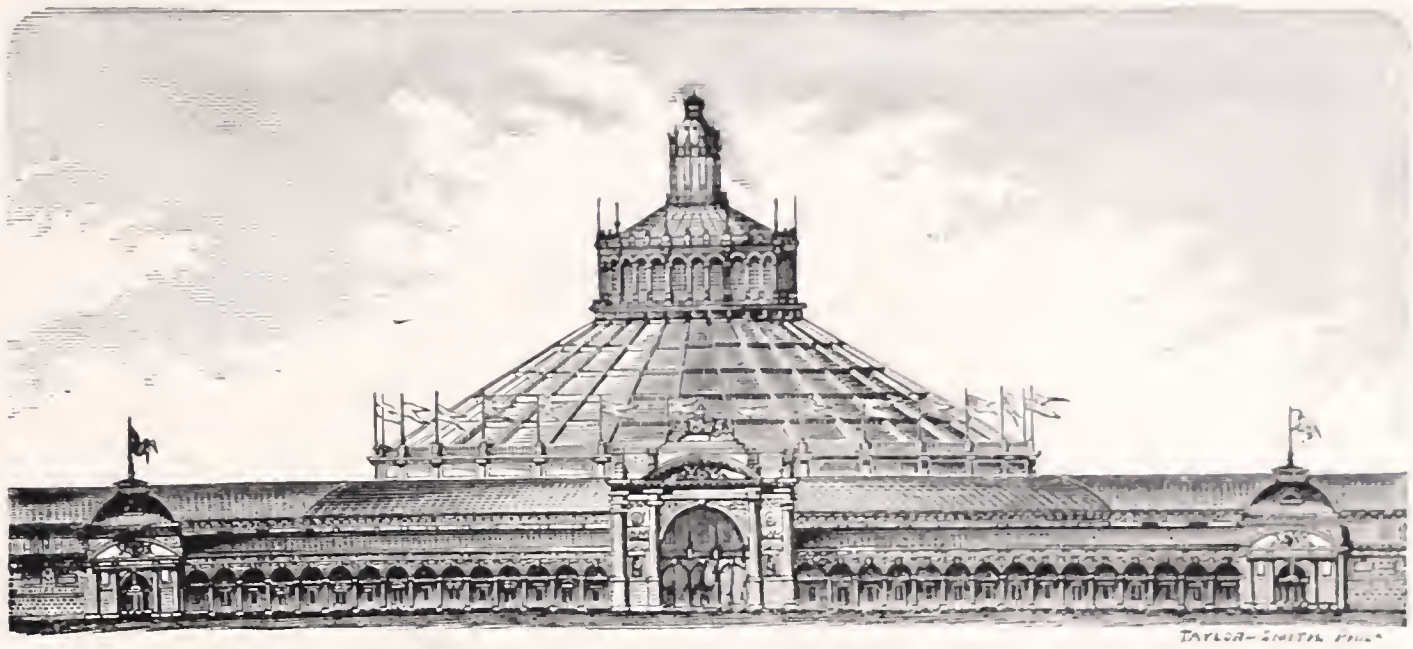


MUNICH EXHIBITION.



THE AUSTRIAN INTERNATIONAL EXHIBITION, 1873.

THE first action in connection with this Exhibition was some years since, when the Emperor of Austria appointed an Imperial Commission to carry out the project. The Emperor called special attention to the advantages to be derived from this great social gathering, the stimulus it would give to the various industries of the Empire, and the elevating character it would have in connecting the nations of the world, and making the centre of Europe the battle-field of a rivalry in the peace productions of the earth. This great building has been erected in the Prater, about three miles from the centre of the city of Vienna. It is nearly 3000 feet long, 82 feet wide, and consists of a dome and two wings, as illustrated above. The dome is 275 feet high, and 334 feet in the span. It was designed by Scott Russell, the celebrated English engineer. The Machinery Hall is a separate building, 2600 feet long by 100 feet wide; and is built to remain as a permanent building for use. The arrangement of the classification is on an entirely different plan from that of Paris, preference being given to the geographical position of each country, without reference to the articles themselves. It



ROTUNDA OF THE AUSTRIAN EXHIBITION.

remains to be seen which of these plans will prove the most satisfactory. The Exhibition opened, as per contract, on the 1st of May, but in a very unprepared condition; not a single one of the sections being ready for exhibition. This is much to be regretted, and should be a warning to us in preparing for 1876. With the power of an Emperor's will, and the resources of the empire, it was found impossible to be ready in season, although with three years in which to prepare. The loss to the Austrian Empire can hardly be overestimated, as the delay of two months must have driven thousands of strangers away. However, the opening ceremonies were magnificent, and Vienna has been visited by many of the crowned heads of Europe. The American Department, although subject to many annoyances, has proved very attractive; and in the distribution of prizes stands, as heretofore, foremost in the ranks of exhibitors. Seventy thousand square feet have been appropriated to the United States, and it is all occupied. There are in all 25,760 exhibitors represented on the first edition of the official catalogue. This has since been largely increased. The able correspondents of our principal journals give admirable accounts of the progress of this Exhibition. It is to be hoped that ours in 1876 may be as fairly reported to the European press.

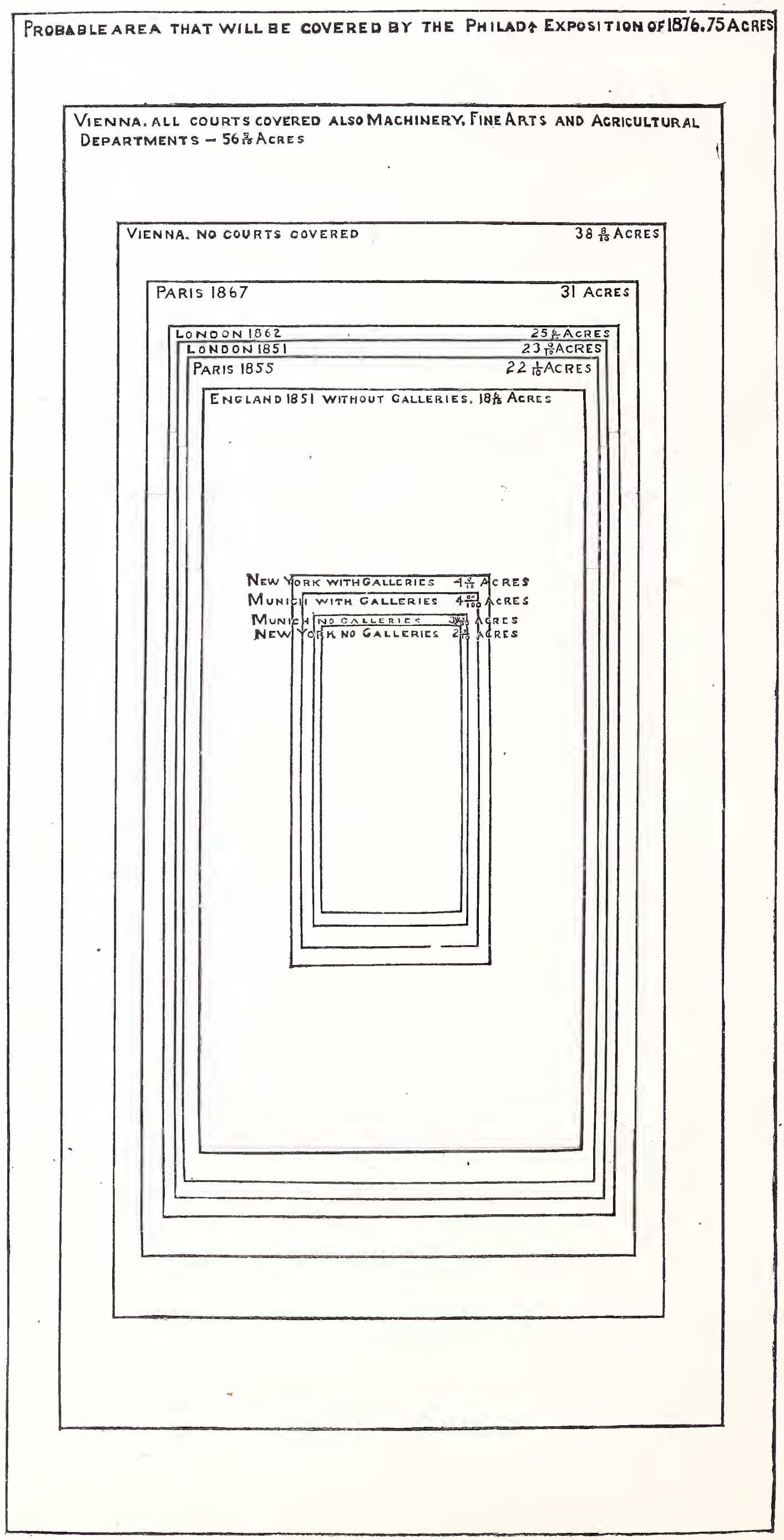


DIAGRAM ILLUSTRATING THE COMPARATIVE SIZE OF EXHIBITION GROUNDS.

THE UNITED STATES INTERNATIONAL EXHIBITION, 1876.

THE account already given of the preceding World's Fairs, is but preliminary to a description of what is proposed for our first entry into international competition. With boundless national resources, with an extent of territory equal to that of several of the nations of the Old World combined, with a population comprising the representatives of all such nations, with an agricultural and mining interest that daily produces imperial resources, and with an inventive faculty yielding an average of from twelve to fifteen thousand new inventions per annum—the Exhibition of 1876 should certainly surpass all others, in its attractions and results. Differing from all former occasions of a similar character, it secures for itself a national sympathy. The one hundredth anniversary of the Independence of the United States will be celebrated upon the spot where that Independence was signed, sealed, and delivered; and in a manner which will bring together, as competitors with this infant nation, Governments founded when this continent was a wilderness peopled with savages. If the attractions of the Exhibition of 1862 brought to London about 6,000,000 visitors, and to Paris, in 1867, 10,000,000, what will not the national home-feeling of our countrymen and women bring about on this great occasion? One-fourth of the entire population of the United States, comprising 10,000,000 of people, will be found within the radius of 250 miles of the city of Philadelphia, the birth-place of Liberty. The entire population of the West and Northwest are even now preparing for the Centennial visit; and many calculating minds have fixed, as a fair total for the visitors to the International Exhibition of 1876, the large number of sixteen millions. It is to bring about so successful a result, that this work is prepared; that all may know the inducements that will be offered for their entertainment and

instruction. In Fairmount Park, a short distance from the centre of the city of Philadelphia, a space of ground comprising over 500 acres has been selected and transferred for the uses of the Centennial Commission and Board of Finance, in connection with the proposed Exhibition. At least seventy-five acres of these grounds will be enclosed and covered by suitable buildings, at an expense of many millions, in which will be presented for exhibition and competition all the products of the known world, arranged each in its proper locality and classification, so that the most untutored mind can thus learn at a glance what are the principal resources of each nation. A voyage around the world could not be properly made in less time than one year, or at a less expense than two or three thousand dollars; but in the Centennial Exhibition of 1876, the citizen of San Francisco, New Orleans, or Portland can, at a small expense of time and money, have the same advantages as the travelled American.

This Exhibition will open in April, and close in October. At least one million of dollars will be appropriated for Rewards and Prizes; for which the people of all nations will be invited to compete, and our own countrymen should commence now to prepare to do themselves credit in this friendly rivalry. Let us hope that it is not alone in a few specialties that we are superior, but that we can, in Silks, Ribbons, and Wines, compare favorably with France; in Iron Manufactures, compete with Great Britain; in Leather, with Russia; in Natural Productions, with South America and the West Indies; and in Art, with Italy. There is every probability, that for the first time in the history of the world, the Islands of the East and of the Pacific will furnish their aid in this great enterprise; Borneo, Java, Siam, the Society Islands, Sandwich Islands, the Empires of China, Japan, and Persia, will all enter into this friendly competition, in a better spirit than any participation in a European Exhibition could bring about. Our nation is at peace with all the world, and no jealous fears can

prevent any country from gladly giving its tribute in honor of the extension of Trade and Commerce.

Arrangements are now in progress to secure proper transportation, at greatly reduced prices, from all sections of our country to the city of Philadelphia, in 1876. Still further, every inducement will be offered to visitors from abroad; and there is not only every reason to expect thousands of Europeans and Asiatics, but already some of their principal rulers have expressed a desire to see with their own eyes the progress of the Republic.

A rough estimate has been made, that there will be at least 50,000 separate articles on exhibition, of which one-half will be the products of American industry, the balance representing the rest of the world. All nations will be invited to erect buildings of their own style of architecture, and we shall be able to examine them at our leisure. As each will also furnish its own restaurant, we who are at home will be able to learn all that is worth knowing on the subject of food and its treatment; which, if properly understood and practised by our people, would of itself amply repay the whole cost and trouble of this Exhibition.

The city of Philadelphia, fully appreciative of the high national honor conferred upon it by Congress and the will of the Nation, is doing all in its power to promote this grand undertaking. Every house there will be open in 1876, and every latch-string on the outside.

The Act of Congress creating the United States Centennial Commission, was approved March 3rd, 1871, and under its authority Commissioners were appointed by the President of the United States.

ACT CREATING THE UNITED STATES CENTENNIAL COMMISSION.

AN ACT to provide for celebrating the One Hundredth Anniversary of American Independence, by holding an International Exhibition of Arts, Manufactures, and Products of the Soil and Mine, in the city of Philadelphia, and State of Pennsylvania, in the year eighteen hundred and seventy-six.

WHEREAS: The Declaration of Independence of the United States of America was prepared, signed, and promulgated in the year seventeen hundred and seventy-six, in the city of Philadelphia; and whereas, it behooves the people of the United States to celebrate, by appropriate ceremonies, the centennial anniversary of this memorable and decisive event, which constituted the fourth day of July, Anno Domini, seventeen hundred and seventy-six, the birthday of the nation; and whereas, it is deemed fitting that the completion of the first century of our national existence shall be commemorated by an exhibition of the natural resources of the country and their development, and of its progress in those arts which benefit mankind, in comparison with those of older nations; and whereas, no place is so appropriate for such an exhibition as the city in which occurred the event it is designed to commemorate; and whereas, as the Exhibition should be a national celebration, in which the people of the whole country should participate, it should have the sanction of the Congress of the United States: therefore,

SECTION 1. *Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled,* That an Exhibition of American and Foreign Arts, Products, and Manufactures shall be held, under the auspices of the Government of the United States, in the city of Philadelphia, in the year eighteen hundred and seventy-six.

SECTION 2 That a Commission, to consist of not more than one delegate from each State, and from each Territory of the United States, whose functions shall continue until the close of the Exhibition, shall be constituted, whose duty it shall be to prepare and superintend the execution of a plan for holding the Exhibition; and, after conference with the authorities of the city of Philadelphia, to fix upon a suitable site within the corporate limits of the said city, where the Exhibition shall be held.

SECTION 3. That said Commissioners shall be appointed within one year from the passage of this Act, by the President of the United States, on the nomination of the Governors of the States and Territories respectively.

SECTION 4. That in the same manner there shall be appointed one Commissioner from each State and Territory of the United States, who shall assume the place and perform the duties of such Commissioner and Commissioners as may be unable to attend the meetings of the Commission.

SECTION 5. That the Commission shall hold its meetings in the city of Philadelphia, and that a majority of its members shall have full power to make all needful rules for its government.

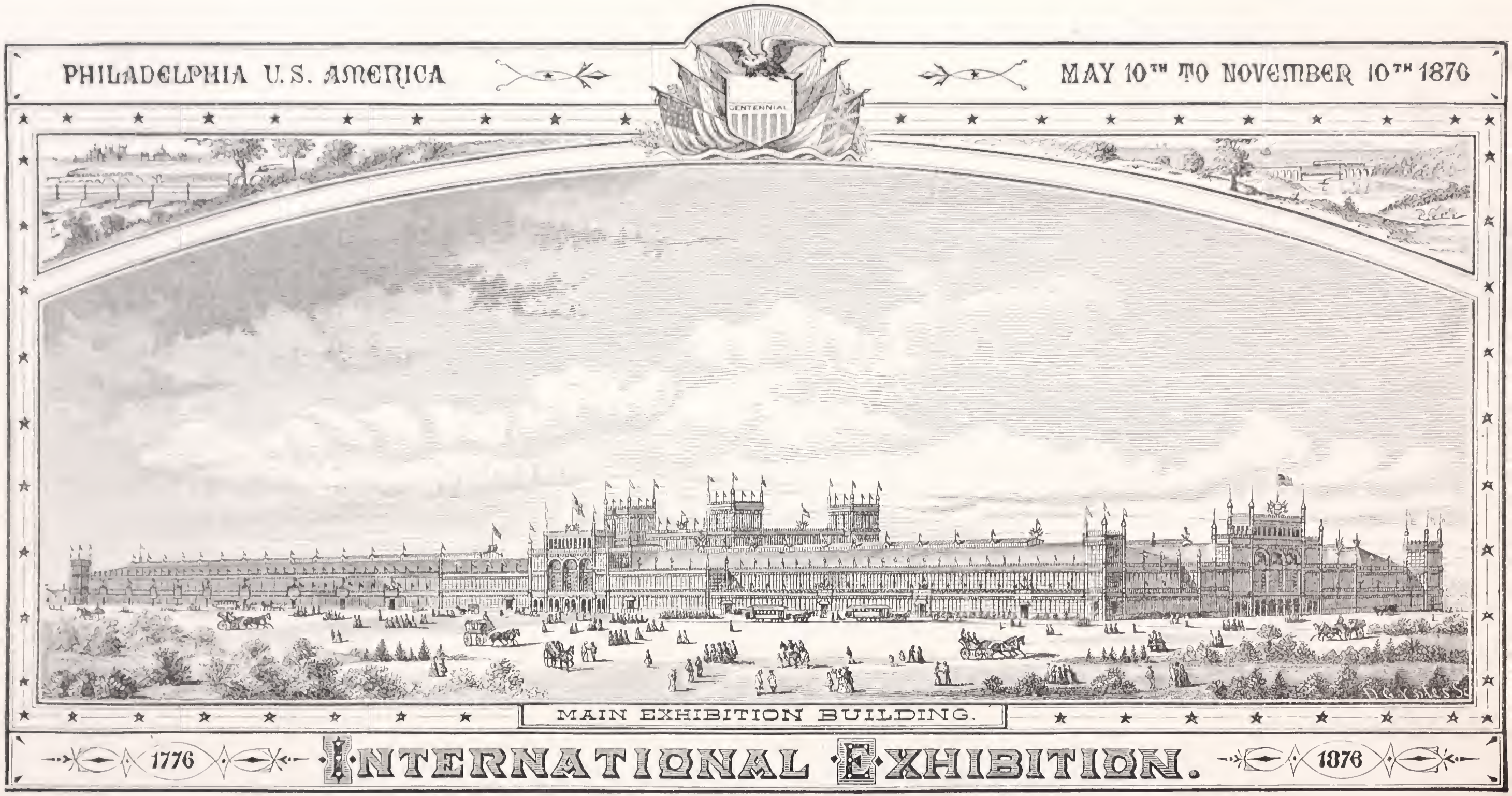
SECTION 6. That the Commission shall report to Congress, at the first session after its appointment, a suitable date for opening and for closing the Exhibition; a schedule of appropriate ceremonies for opening or dedicating the same; a plan or plans of the buildings; a complete plan for the reception and classification of articles intended for exhibition; the requisite custom-house regulations for the introduction into this country of the articles from foreign countries intended for exhibition; and such other matters as in their judgment may be important.

SECTION 7. That no compensation for services shall be paid to the Commissioners or other officers provided for by this Act

from the Treasury of the United States; and the United States shall not be liable for any expenses attending such Exhibition, or by reason of the same.

SECTION 8. That whenever the President shall be informed by the Governor of the State of Pennsylvania that provision has been made for the erection of suitable buildings for the purpose, and for the exclusive control by the Commission herein provided for of the proposed Exhibition, the President shall, through the Department of State, make proclamation of the same, setting forth the time at which the Exhibition will open and the place at which it will be held; and he shall communicate to the diplomatic representatives of all nations copies of the same, together with such regulations as may be adopted by the Commissioners, for publication in their respective countries.

Approved March 3rd, 1871.


PHILADELPHIA U.S. AMERICA
MAY 10TH TO NOVEMBER 10TH 1876
CENTENNIAL
MAIN EXHIBITION BUILDING.
1776
INTERNATIONAL EXHIBITION.
1876

MAIN EXHIBITION BUILDING.

THE buildings now erecting are the most capacious, as seen by the ground plan, page 30, and it is believed will also be the most elegant and best adapted for these purposes of any ever erected.

This building is in the form of a parallelogram, extending east and west 1,880 feet in length, and north and south 464 feet in width.

The larger portion of the structure is one story in height, and shows the main cornice upon the outside at 45 feet above the ground, the interior height being 70 feet. At the centre of the longer sides are projections 416 feet in length, and in the centre of the shorter sides or ends of the building are projections 216 feet in length. In these projections, in the centre of the four sides, are located the main entrances, which are provided with arcades upon the ground floor, and central facades extending to the height of 90 feet.

The East Entrance will form the principal approach for carriages, visitors being allowed to alight at the doors of the building under cover of the arcade.

The South Entrance will be the principal approach from street cars, the ticket offices being located upon the line of Elm Avenue, with covered ways provided for entrance into the building itself.

The Main Portal on the north side communicates directly with the Art Gallery, and the Main Portal on the west side gives the main passage way to the Machinery and Agricultural Halls.

Upon the corners of the building there are four towers 75 feet in height, and between the towers and the central projections or

entrances, there is a lower roof introduced showing a cornice at 24 feet above the ground.

In order to obtain a central feature for the building as a whole, the roof over the central part, for 184 feet square, has been raised above the surrounding portion, and four towers, 48 feet square, rising to 120 feet in height, have been introduced at the corners of the elevated roof.

The areas covered are as follows:

Ground Floor,.....	872,320	square	feet.	20.02	acres.
Upper Floors in projections,.....	37,344	"	"	.85	"
" " in towers,.....	26,344	"	"	.60	"
	936,008			21.47	

GROUND PLAN.

The general arrangement of the ground plan shows a central avenue or nave 120 feet in width, and extending 1,832 feet in length. This is the longest avenue of that width ever introduced into an Exhibition Building. On either side of this nave there is an avenue 100 feet by 1,832 feet in length. Between the nave and side avenues are aisles 48 feet wide, and on the outer sides of the building smaller aisles 24 feet in width.

In order to break the great length of the roof lines, three cross avenues or transepts have been introduced of the same widths and in the same relative positions to each other as the nave and avenues running lengthwise, *viz:* a central transept 120 feet in width by 416 feet in length, with one on either side of 100 feet by 416 feet, and aisles between of 48 feet.

The intersections of these avenues and transepts in the central portion of the building result in dividing the ground floor into

nine open spaces free from supporting columns, and covering in the aggregate an area of 416 feet square. Four of these spaces are 100 feet square, four 100 feet by 120 feet, and the central space or pavilion 120 feet square. The intersections of the 48 feet aisles produce four interior courts 48 feet square, one at each corner of the central space.

The main promenades through the nave and central transept, are each 30 feet in width, and those through the centre of the side avenues and transepts 15 feet each. All other walks are 10 feet wide, and lead at either end to exit doors.

The following table gives the principal dimensions of the different parts of the building.

DIMENSIONS.

Measurements taken from centre to centre of supporting columns.

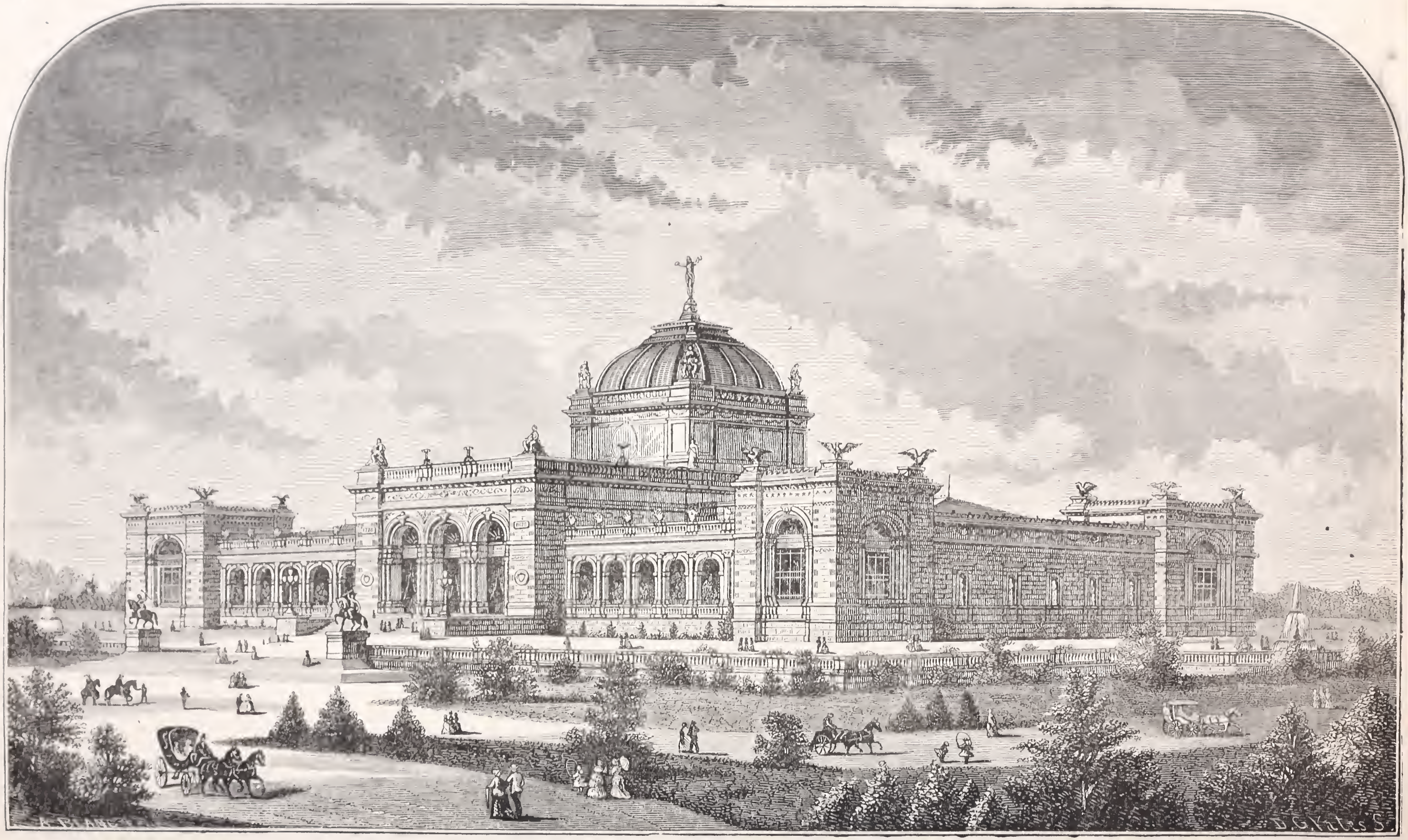
Length of Building,	1,830 feet.
Width of Building,	464 "

CENTRAL AVENUE OR NAVE.

Length,	1,832 "
Width,	120 "
Height to top of supporting columns,	45 "
Height to ridge of roof,	70 "

CENTRAL TRANSEPT.

Length,	416 "
Width,	120 "
Height to top of columns,	45 "
Height to ridge of roof,	70 "



ART GALLERY.

ART GALLERY.

THIS structure, which is one of the affixes to the great Exhibition, is located on a line parallel with and northward of the Main Exhibition Building.

It is on the most commanding portion of great Lansdowne Plateau, and looks southward over the city.

It is elevated on a terrace six feet above the general level of the plateau—the plateau itself being an eminence 116 feet above the surface of the Schuylkill River.

The entire structure is in the modern renaissance. The materials are granite, glass, and iron. No wood is used in the construction, and the building is thoroughly fireproof. The structure is 365 feet in length, 210 feet in width, and 59 feet in height, over a spacious basement 12 feet in height, surmounted by a dome.

DETAILS.

EXTERIOR—1. THE MAIN FRONT.—The main front looks southward; it displays three distinctive features:

First.—A main entrance in the centre of the structure consisting of three colossal arched doorways of equal dimensions.

Second.—A pavilion at each end.

Third.—Two arcades connecting the pavilions with the centre; central section, 95 feet long, 72 feet high; pavilions, 45 feet long, 60 feet high; arcades, each, 90 feet long, 40 feet high.

The front or south face of the central section displays a rise of thirteen steps to the entrance 70 feet wide. The entrance is by three arched doorways, each 40 feet high and 15 feet wide,

opening into a hall. Between the arches of the doorways are clusters of columns terminating in emblematic designs illustrative of science and art.

The doors, which are of iron, are relieved by bronze panels, having the coats-of-arms of all the States and Territories.

In the centre of the main frieze is the United States coat-of-arms.

The main cornice is surmounted by a balustrade with candelabras. At either end is an allegorical figure representing science and art.

The dome rises from the centre of the structure to the height of 150 feet from the ground. It is of glass and iron and of a unique design; it terminates in a colossal bell—from which the figure of Columbia rises with protecting hands.

A figure of colossal size stands at each corner of the base of the dome. These figures typify the four quarters of the globe.

Each pavilion displays a window 30 feet high and 12 feet wide; it is also ornamented with tile work, wreaths of oak and laurel, 13 stars in the frieze, and a colossal eagle at each of its four corners.

The arcades, a general feature in the old Roman villas, but entirely novel here, are intended to screen the long walls of the gallery.

These each consist of five groined arches—these arcades form promenades looking outward over the grounds and inward over open gardens, which extend back to the main wall of the building. These garden plats are each 90 feet long and 36 feet deep, ornamented in the centre with fountains and designed for the display of statuary. A stairway from the gardens reaches the upper line of these arcades, forming a second promenade 35 feet above the ground. Its balustrade is ornamented with vases, and is

designed ultimately for statues. The cornices, the attics, and the crestings throughout are highly ornamented.

The walls of the east and west sides of the structure display the pavilions and the walls of the picture galleries, and are relieved by five niches designed for statues, the frieze is richly ornamented—above it the central dome shows to great advantage.

The rear or north front is of the same general character as the main front, but in place of the arcade is a series of arched windows, twelve in number, with an entrance in the centre; in all, thirteen openings above, in an unbroken line, extending the entire length of the structure; between the pavilions is the grand balcony—a promenade 275 feet long and 45 feet wide, and elevated 40 feet above the ground, overlooking northward the whole panorama of the park grounds.

The main entrance opens on a hall 82 feet long, 60 feet wide, and 53 feet high, decorated in the modern renaissance style; on the farther side of this hall, three doorways, each 16 feet wide and 25 feet high, open into the centre hall: this hall is 83 feet square, the ceiling of the dome rising over it 80 feet in height.

From its east and west sides extend the galleries, each 98 feet long, 48 feet wide, and 35 feet in height. These galleries admit of temporary divisions for the more advantageous display of paintings. The centre hall and galleries form one grand hall 287 feet long and 85 feet wide, capable of holding eight thousand persons, nearly twice the dimensions of the largest hall in the country. From the two galleries, doorways open into two smaller galleries, 28 feet wide and 89 feet long. These open north and south into private apartments which connect with the pavilion rooms, forming two side galleries 210 feet long. Along the whole length of the north side of the main galleries and central hall extends a corridor 14 feet wide, which opens on its north

line into a series of private rooms, thirteen in number, designed for studios and smaller exhibition rooms.

All the galleries and central hall are lighted from above; the pavilions and studios are lighted from the sides. The pavilions and central hall are designed especially for exhibitions of sculpture.

SPECIAL REGULATIONS

GOVERNING THE EXHIBITION OF FINE ARTS AT THE INTERNATIONAL EXHIBITION OF EIGHTEEN HUNDRED AND SEVENTY-SIX, AT PHILADELPHIA.

FIRST.—The Exhibition will be opened on the 10th day of May, 1876, and closed on the 10th day of November following.

SECOND.—Works of Art will be admitted for exhibition, whether previously exhibited or not.

THIRD.—Applications for space and negotiations relative thereto must be conducted with the Commission of the country of which the applicant is a citizen.

FOURTH.—No charge will be made for space.

FIFTH.—The admission of foreign works of Art to the Exhibition, except those referred to in Rule IX, will be left to the Commissions appointed by the respective governments.

SIXTH.—Foreign packages for this department must be marked "Art Department," and addressed to the Commission for (name of Country) International Exhibition, Philadelphia, U. S. A.

SEVENTH.—The works of foreign artists will be placed in the care of the Commission of the country to which they belong.

EIGHTH.—Works of foreign artists, belonging to residents of the United States, will be admitted on the approval of the Committee of Selection, for exhibition in a special gallery.

NINTH.—Foreign Commissions will transmit to the Director-General prior to March 1st, 1876, information concerning the works of Art to be exhibited by their citizens that may be necessary for the preparation of the Official Catalogue.

TENTH.—The installation of works of Art admitted to the Exhibition will be under the supervision of the Commissions of the country to which they belong.

ELEVENTH.—All work of Art must be of a high order of merit, and those produced by citizens of the United States will be admitted to the Exhibition only on the approval of the Committee of Selection.

TWELFH.—Packages forwarded by exhibitors in the United States, for admission to this department, must be marked "Art Department, International Exhibition, Philadelphia." There must be also attached to the outside and inside of each package a label giving the name and address of the exhibitor, and the title and number of articles in the package.

THIRTEENTH.—All pictures, whether round or oval, should be placed in square frames. Excessive breadth in frames or projecting mouldings should be avoided. Shadow boxes will not be allowed to project more than one inch beyond the frame. Glass over Oil Paintings will not be permitted.

FOURTEENTH.—Works of Art intended for sale will be so designated in the Official Catalogue.

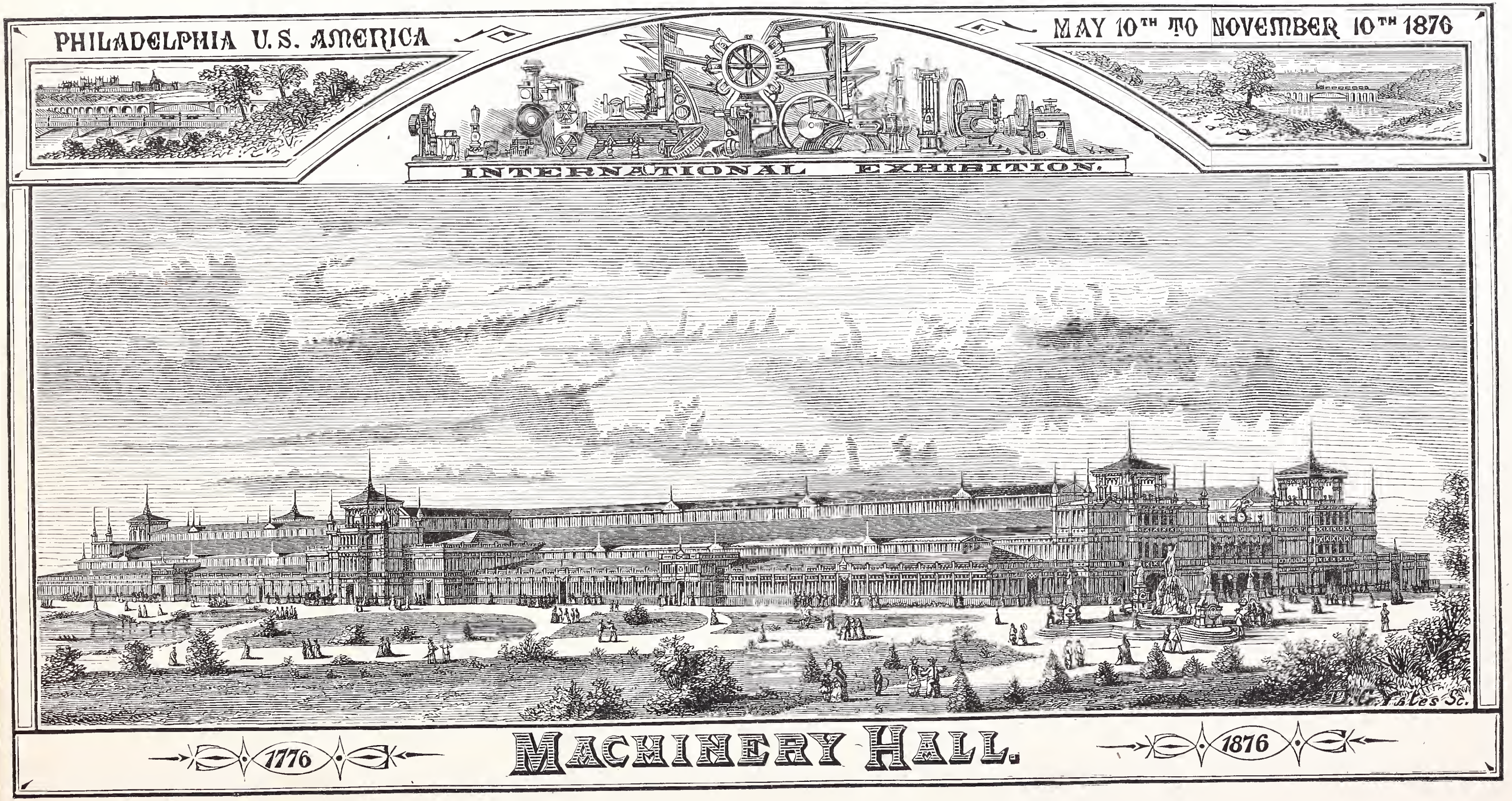
FIFTEENTH.—All works of Art must be in Philadelphia prior to April 1st, 1876, and after having been admitted under the rules, shall not be removed before the close of the Exhibition.

SIXTEENTH.—Each person presenting works of Art for admission, thereby agrees to comply with the special rules established for this department and the general rules for the government of the Exhibition.

A. T. GOSHORN,
Director-General.

JOHN L. CAMPBELL,
Secretary.

March 1st, 1875.


PHILADELPHIA U.S. AMERICA
MAY 10TH TO NOVEMBER 10TH 1876
INTERNATIONAL EXHIBITION.
1776
MACHINERY HALL.
1876

MACHINERY BUILDING.

THIS structure is located west of the intersection of Belmont and Elm Avenues, at a distance of 542 feet from the west front of the Main Exhibition Building, and 274 feet from the north side of Elm Avenue. The north front of the building will be upon the same line as that of the Main Exhibition Building, thus presenting a frontage of 3,824 feet from the east to the west ends of the Exhibition Buildings upon the principal avenue within the grounds.

The building consists of the Main Hall, 360 feet wide by 1,402 feet long, and an annex on the south side of 208 feet by 210 feet. The entire area covered by the Main Hall and annex is 558,440 square feet, or 12.82 acres. Including the upper floors the building provides 14 acres of floor space.

The principal portion of the structure is one story in height, showing the main cornice upon the outside at 40 feet from the ground, the interior height to the top of the ventilators in the avenues being 70 feet, and in the aisles 40 feet. To break the long lines upon the exterior, projections have been introduced upon the four sides, and the main entrances finished with façades, extending to 78 feet in height. The east entrance will form the principal approach from street-cars, from the Main Exhibition Building, and from the Railroad Depot. Along the south side will be placed the Boiler Houses and such other buildings for special kinds of machinery as may be required. The west entrance affords the most direct communication with George's Hill, which point affords the best view of the entire Exhibition grounds.

GROUND PLAN.

The arrangement of the ground plan shows two main avenues 90 feet wide by 1,360 feet long, with a central aisle between and an aisle on either side. Each aisle is 60 feet in width; the two avenues and three aisles making the total width of 360 feet. At the centre of the building is a transept of 90 feet in width, which at the south end is prolonged beyond the Main Hall. This transept, beginning at 36 feet from the Main Hall and extending 208 feet, is flanked on either side by aisles of 60 feet in width, and forms the annex for hydraulic machines. The promenades in the avenues are 15 feet in width; in the transept 25 feet, and in the aisles 10 feet. All other walks extending across the building are 10 feet in width, and lead at either end to exit doors.

CONSTRUCTION.

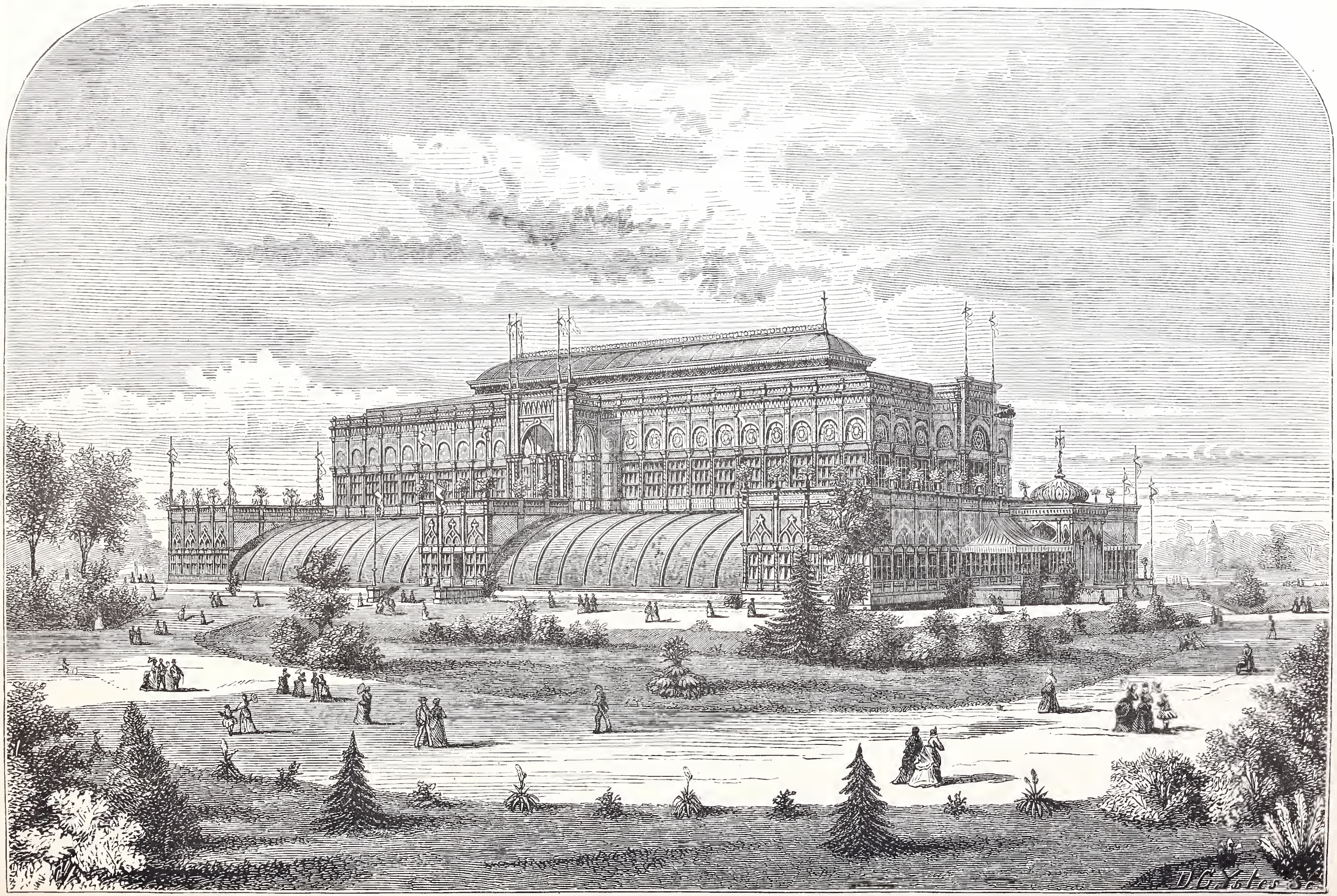
The foundations consist of piers of masonry. The superstructure consists of solid timber columns supporting roof trusses, constructed with straight wooden principals and wrought iron ties and struts. As a general rule the columns are placed lengthwise of the building, at the uniform distance apart of 16 feet. The columns are 40 feet high to the heel block of the 90 feet span roof trusses over the avenues, and they support the heel of the 60 feet spans over the aisles, at the height of 20 feet. The outer walls are built of masonry to a height of five feet, and above that are composed of glazed sash placed between the columns. Portions of the sash are movable for ventilation. Louvre ventilators are introduced in continuous lengths over both the avenues and the aisles. The building is lit entirely by side light, and stands lengthwise nearly east and west.

SHAFTING.

The building admits of the most complete system of shafting, the facilities in this respect being very superior. Eight main lines may be introduced, extending almost the entire length of the structure, and counter-shafts introduced into the aisles at any point. The hangers will be attached either to the wooden horizontal ties of the 60 feet span roof trusses, or to brackets especially designed for the purpose, projecting from the columns, in either case at the height of 20 feet from the floor.

HYDRAULIC ANNEX.

The annex for hydraulic machines contains a tank 60 feet by 160 feet, with depth of water of 10 feet. In connection with this it is expected that hydraulic machinery will be exhibited in full operation. At the south end of this tank will be a water fall 35 feet high by 40 feet wide, supplied from the tank by the pumps upon exhibition.



HORTICULTURAL BUILDING.

HORTICULTURAL BUILDING.

The liberal appropriations of the City of Philadelphia have provided the Horticultural Department of the Exhibition with an extremely ornate and commodious building, which is to remain in permanence as an ornament of Fairmount Park. It is located on the Lansdowne Terrace, a short distance north of the Main Building and Art Gallery, and has a commanding view of the Schuylkill River and the northwestern portion of the city. The design is in the Moresque style of architecture of the twelfth century, the principal materials externally being iron and glass. The length of the building is 383 feet; width, 193 feet, and height to the top of the lantern, 72 feet.

The main floor is occupied by the central Conservatory, 230 by 80 feet, and 55 feet high, surmounted by a lantern 170 feet long, 20 feet wide, and 14 feet high. Running entirely around this Conservatory, at a height of 20 feet from the floor, is a gallery 5 feet wide. On the north and south sides of this principal room are four Forcing Houses for the propagation of young plants, each of them 100 by 30 feet, covered with curved roofs of iron and glass. Dividing the two Forcing Houses in each of these sides is a vestibule 30 feet square. At the centre of the east and west ends are similar vestibules, on either side of which are the Restaurants, Reception room, Offices, &c. From the vestibules ornamental stairways lead to the internal galleries of the Conservatory, as well as to the four external galleries, each 100 feet long and 10 feet wide, which surmount the roofs of the Forcing Houses. These external galleries are connected with a grand promenade, formed by the roofs of the rooms on the ground floor, which has a superficial area of 1,800 square yards.

The east and west entrances are approached by flights of blue-marble steps from terraces 80 by 20 feet, in the centre of each of which stands an open Kiosk 20 feet in diameter. The angles of the main Conservatory are adorned with eight ornamental fountains. The corridors which connect the Conservatory with the surrounding rooms open fine vistas in every direction.

In the basement, which is of fire-proof construction, are the kitchen, store-rooms, coal-houses, ash-pits, heating arrangements, &c.

AGRICULTURAL BUILDING.

AGRICULTURAL BUILDING.

This structure will stand north of the Horticultural Building, and on the eastern side of Belmont Avenue. It will illustrate a novel combination of materials, and is capable of erection in a few months. Its materials are wood and glass. It consists of a long nave crossed by three transepts, both nave and transept being composed of Howe truss arches of a Gothic form. The nave is 820 feet in length by 125 feet in width, with a height of 75 feet from the floor to the point of the arch. The central transept is of the same height, and a breadth of 100 feet, the two end transepts 70 feet high and 80 feet wide.

The four courts enclosed between the nave and transepts, and also the four spaces at the corners of the building, having the nave and end transepts for two of their sides, will be roofed and form valuable spaces for exhibits. Thus the ground plan of the building will be a parallelogram of 540 by 820 feet, covering a space of above ten acres. In its immediate vicinity will be the stock yards for the exhibition of horses, cattle, sheep, swine, poultry, etc.

This comprehensive system of building, *viz.*:

Main Building, - - -	covering 21.47 acres;
Art Gallery, - - -	covering 1.5 acres;
Machinery Building, - -	covering 14 acres;
Horticultural Building, -	covering 1.5 acres;
Agricultural Building, -	covering 10.15 acres;

Provides for the accommodation of the ten departments of the classification.

There will be required, in addition to these buildings, a number of smaller structures for the administration of the Exhibition, all of which are now being designed with a view to their early erection. The preparation of the grounds allotted to the Commission in Fairmount Park and the construction of the various buildings are far advanced, and will be vigorously urged forward. Although the erection of the buildings and the grading of the Park were not commenced until July, 1874, the progress made to this date insures their timely completion on a scale and in a manner that will answer the requirements of the Exhibition in every particular.

Besides the Exhibition buildings proper, numerous applications have been made by manufacturers, and by the commissions of foreign governments for permission to erect pavilions and various ornamental and useful structures within the Exhibition grounds. A number of fountains, memorial statues and other decorative objects are in preparation, under the auspices of local organizations. These adjuncts will add essentially to the attractions of the Park.

For the purpose of thoroughly canvassing the various States and presenting the subject properly to the people, a

BUREAU OF REVENUE

has been organized from the Directors of the Board of Finance, and constituted as follows:

Chairman.—CLEMENT M. BIDDLE.

Financial Agent.—WILLIAM BIGLER.

EDWARD T. STEEL,	AMOS R. LITTLE,	JOHN WANAMAKER,
THOMAS H. DUDLEY,	DANIEL M. FOX,	JOSEPH R. ROBB,
JOHN BAIRD,	J. B. DRAKE,	GEORGE BAIN,
	W. L. STRONG.	

Through this Bureau and its efficient Financial Agent, Governer Bigler, the attention of the various States has been aroused and general agents and auxiliary boards established in many sections of our country.

By an Act of Incorporation the Centennial Board of Finance is authorized to issue stock to the amount of Ten Millions of Dollars, in shares of ten dollars each, and this Bureau appeals to every American citizen, not only to subscribe for the stock of this corporation, but also to urge all his friends and neighbors to do the same. The money thus subscribed will be expended in erecting the necessary buildings, preparing the grounds, and arranging for the proper reception and placing of the articles on exhibition. It is believed that the income derived from the receipts for tickets and from the various concessions granted for privileges, will not only repay the subscriber his investment, but also a fair interest on the outlay; it will be borne in mind that the appeal is made direct to the people with the hope that at least twenty per cent. of our whole population will become individually interested in the success of this national enterprise; to each shareholder will be presented a certificate beautifully engraved on steel by the United States Treasury Department. This engraving will be of great interest, to be preserved as a memorial of the one hundredth birthday of the nation.

In addition public attention is invited to the CENTENNIAL MEDALS, of which an illustration is given herewith.

These medals are of four kinds as follows, and will be forwarded carefully packed, by mail or express, on receipt of the price.

No. 1.—Bronze Gilt, large, in case,	. . . .	$ 5 00
" 2.—Bronze, plain, large, do.	. . . .	2 00
" 3.—Silver, small, in case,	. . . . .	3 00
" 4.—Bronze Gilt, small, in box,	. . . .	1 00
" 5.—The four medals in one case,	. . .	11 00

GENERAL REGULATIONS

FOR EXHIBITORS IN THE UNITED STATES.

The Exhibition will be held at Fairmount Park, in the City of Philadelphia, and will be opened on the 10th day of May, 1876, and closed on the 10th day of November following.

The ten departments of the classification which will determine the relative location of articles in the Exhibition,—except in

such collective exhibitions as may receive special sanction,—and also the arrangement of names in the Catalogue, are as follows:

I.—*Raw Materials—Mineral, Vegetable, and Animal.*

II.—*Materials and Manufactures used for Food, or in the Arts, the result of Extractive or Combining Processes.*

III.—*Textile and Felted Fabrics; Apparel, Costumes, and Ornaments for the person.*

IV.—*Furniture and Manufactures of general use in construction and in dwellings.*

V.—*Tools, Implements, Machines, and Processes.*

VI.—*Motors and Transportation.*

VII.—*Apparatus and Methods for the increase and diffusion of knowledge.*

VIII.—*Engineering, Public Works, Architecture, etc.*

IX.—*Plastic and Graphic Arts.*

X.—*Objects illustrating efforts for the improvement of the Physical, Intellectual, and Moral Condition of Man.*

Applications for space and negotiations relative thereto should be addressed to the Director-General, International Exhibition, Philadelphia, Penna.

Exhibitors will not be charged for space.

A limited quantity of steam and water-power will be supplied gratuitously. The quantity of each will be settled definitively at the time of the allotments of space. Any power required by the exhibitor in excess of that allowed will be furnished by the Commission at a fixed price. Demands for such excess of power must also be settled at the time of the allotment of space.

Exhibitors must provide, at their own cost, all show-cases, shelving, counters, fittings, etc., which they may require; and all

countershafts, with their pulleys, belting, etc., for the transmission of power from the main shafts in the Machinery Hall. All arrangements of articles and decorations must be in conformity with the general plan adopted by the Director-General.

Special constructions of any kind, whether in the buildings or grounds, can only be made upon the written approval of the Director-General.

The Commission will take precautions for the safe preservation of all objects in the Exhibition; but it will in no way be responsible for damage or loss of any kind, or for accidents by fire or otherwise, however originating.

Favorable facilities will be arranged by which exhibitors may insure their own goods.

Exhibitors may employ watchmen of their own choice to guard their goods during the hours the Exhibition is open to the public. Appointments of such watchmen will be subject to the approval of the Director-General.

Exhibitors, or such agents as they may designate, shall be responsible for the receiving, unpacking, and arrangement of objects, as well as for their removal at the close of the Exhibition.

The transportation, receiving, unpacking, and arranging of the products for exhibition will be at the expense of the exhibitor.

The installation of heavy articles requiring foundations should, by special arrangement, be begun as soon as the progress of the work upon the buildings will permit. The general reception of articles at the Exhibition buildings will be commenced on January 1, 1876, and no articles will be admitted after March 31, 1876.

Space not occupied on the first of April, 1876, will revert to the Director-General for re-assignment.

If products are not intended for competition, it must be so

stated by the exhibitor; and they will be excluded from the examination by the International Juries.

If no authorized person is at hand to receive goods on their arrival at the Exhibition building, they will be removed without delay, and stored at the cost and risk of whomsoever it may concern.

Articles that are in any way dangerous or offensive, also patent medicines, nostrums, and empirical preparations whose ingredients are concealed, will not be admitted to the Exhibition.

The removal of goods will not be permitted prior to the close of the Exhibition.

Sketches, drawings, photographs, or other reproductions of articles exhibited, will only be allowed upon the joint assent of the exhibitor and the Director-General; but views of portions of the building may be made upon the Director-General's sanction.

Immediately after the close of the Exhibition, exhibitors shall remove their effects, and complete such removal before December 31, 1876. Goods then remaining will be removed by the Director-General and sold for expenses, or otherwise disposed of under the direction of the Commission.

Each person who becomes an exhibitor thereby acknowledges and undertakes to keep the rules and regulations established for the government of the Exhibition.

Special regulations will be issued concerning the exhibition of fine arts, the organization of international juries, awards of prizes, the sale of special articles within the buildings, and on other points not touched upon in these preliminary instructions.

An Official Catalogue will be published in four distinct versions,—viz., English, French, German and Spanish. The sale of Catalogues is reserved to the Centennial Commission.

Communications concerning the Exhibition should be ad-

dressed to "The Director-General, International Exhibition, 1876, Philadelphia, Penna."

The Centennial Commission reserves the right to explain or amend these regulations, whenever it may be deemed necessary for the interests of the Exhibition.

A. T. GOSHORN,
Director-General.

JOHN L. CAMPBELL,
Secretary.

Philadelphia, July 4, 1874.

Board of the Centennial Commission.

MAY 22, 1875.

ALABAMA.

James L. Cooper.

ARIZONA.

Richard C. McCormick,
John Wasson.

ARKANSAS.

G. W. Lawrence,
G. C. Dodge.

CALIFORNIA.

John Dunbar Creigh,
Benj. P. Kooser.

COLORADO.

J. Marshall Paul,
N. C. Meeker.

CONNECTICUT.

Joseph R. Hawley,
Wm. Phipps Blake.

DAKOTAH.

J. A. Burbank,
Solomon L. Spink.

DELAWARE.

Henry F. Askew,
John H. Rodney.

DIST. OF COLUMBIA.

James E. Dexter,
Lawrence A. Gobright.

FLORIDA.

John S. Adams,
J. T. Bernard.

GEORGIA.

George Hillyer,
R. Peters, jr.

IDAHO.

Thomas Donaldson,
C. W. Moore.

ILLINOIS.

Frederick L. Matthews,
Lawrence Weldon.

INDIANA.

John L. Campbell,
Franklin C. Johnson.

IOWA.

Robert Lowry,
Coker F. Clarkson.

KANSAS.

John A. Martin,
George A. Crawford.

KENTUCKY.

Robert Mallory,
Smith M. Hobbs.

LOUISIANA.

John Lynch,
Edward Penington.

MAINE.
Joshua Nye,
Charles P. Kimball.

MARYLAND.
James T. Earle,
S. M. Shoemaker.

MASSACHUSETTS.
George B. Loring,
William B. Spooner.

MICHIGAN.
James Birney,
Claudius B. Grant.

MINNESOTA.
J. Fletcher Williams,
W. W. Folwell.

MISSISSIPPI.
O. C. French.

MISSOURI.
John McNeil,
Samuel Hays.

MONTANA.
J. P. Woolman,
Patrick A. Largey.

NEBRASKA.
Henry S. Moody,
R. W. Furnas.

NEVADA.
Wm. Wirt McCoy,
James W. Haines.

NEW HAMPSHIRE.
Ezekiel A. Straw,
Asa P. Cate.

NEW JERSEY.
Orestes Cleveland,
John G. Stevens.

NEW MEXICO.
Eldridge W. Little,
Stephen B. Elkins.

NEW YORK.
N. M. Beckwith,
Charles H. Marshall.

NORTH CAROLINA.
Samuel F. Phillips,
Jonathan W. Albertson,

OHIO.
Alfred T. Goshorn,
Wilson W. Griffith.

OREGON.
James W. Virtue,
Andrew J. Dufur.

PENNSYLVANIA.
Daniel J. Morrell,
Asa Packer.

RHODE ISLAND.
George H. Corliss,
R. C. Taft.

SOUTH CAROLINA.
William Gurney,
Archibald Cameron.

TENNESSEE.
Thomas H. Coldwell,
William F. Prosser.

TEXAS.
Wm. Henry Parsons,
John C. Chew.

UTAH.

John H. Wickizer,
William Haydon.

VERMONT.

Middleton Goldsmith,
Henry Chase,

VIRGINIA.

F. W. M. Halliday,
Ed. R. Bagwell.

WASHINGTON TERRITORY.

Elwood Evans,
Alexander S. Abernethy.

WEST VIRGINIA.

Alex. R. Boteler,
Andrew J. Sweeny.

WISCONSIN.

David Atwood,
Edward D. Holton.

WYOMING.

Jos. M. Carey,
Robert H. Lamborn.

The following gentlemen were elected, on the 22nd of May, Officers of the Board for 1875.

PRESIDENT.

GEN'L JOSEPH R. HAWLEY, of Connecticut.

FIRST VICE-PRESIDENT.

ORESTES CLEVELAND, of New Jersey.

SECOND VICE-PRESIDENT.

JOHN D. CREIGH, of California.

THIRD VICE-PRESIDENT.

ROBERT LOWRY, of Iowa.

FOURTH VICE-PRESIDENT.

THOMAS H. COLDWELL, of Tennessee.

FIFTH VICE-PRESIDENT.

JOHN McNEIL, of Missouri.

SIXTH VICE-PRESIDENT.

WILLIAM GURNEY, of South Carolina.

JOHN L. CAMPBELL, Secretary.

JOHN L. SHOEMAKER, ESQ., Counsellor and Commissioner.

THE EXECUTIVE COMMITTEE.

DANIEL J. MORRELL, of Pennsylvania.
ALFRED T. GOSHORN, of Ohio.
N. M. BECKWITH, of New York.
ALEXANDER R. BOTELER, of West Virginia.
RICHARD G. McCORMICK, of Arizona.
JOHN LYNCH, of Louisiana.
CHARLES P. KIMBALL, of Maine.
SAMUEL F. PHILLIPS, of North Carolina.
FREDERICK L. MATTHEWS, of Illinois.
WILLIAM PHIPPS BLAKE, of Connecticut.
JAMES E. DEXTER, of District of Columbia.
J. T. BERNARD, of Florida.
GEORGE B. LORING, of Massachusetts.

UPON the organization of the Board of Commissioners, all the necessary steps were taken for the preliminary labor in connection with the preparations for the Exhibition, and also to secure the financial aid required to carry the enterprise through to a successful termination. To give the proper solidity and status to the undertaking, a National Board of Finance was chartered by special Act of Congress, approved June 1st, 1872, the corporators being named from each State. At the first and subsequent regular meetings of said corporators, the following gentlemen have been elected Officers of the Board of Finance for 1875, who have as stated hereafter organized a Bureau of Revenue for the purpose of a direct and thorough canvass of all the States, and to give every citizen an opportunity to participate in this most patriotic National Jubilee.

CENTENNIAL BOARD OF FINANCE,

1875.

PRESIDENT.

JOHN WELSH,	PHILADELPHIA.

VICE PRESIDENTS.

WILLIAM SELLERS,	PHILADELPHIA.
JOHN S. BARBOUR,	VIRGINIA.

DIRECTORS.

SAMUEL M. FELTON,	PHILADELPHIA.
DANIEL M. FOX,	"
THOMAS COCHRAN,	"
CLEMENT M. BIDDLE,	"
N. PARKER SHORTRIDGE,	"
JAMES M. ROBB,	"
EDWARD T. STEEL,	"
JOHN WANAMAKER,	"
JOHN PRICE WETHERILL,	"
HENRY WINSOR,	"
AMOS R. LITTLE,	"
JOHN BAIRD,	"
THOMAS H. DUDLEY,	NEW JERSEY.
A. S. HEWITT,	NEW YORK.
W. L. STRONG,	NEW YORK.
JOHN CUMMINGS,	MASSACHUSETTS.
JOHN GORHAM,	RHODE ISLAND.
CHARLES W. COOPER,	PENNSYLVANIA.
WILLIAM BIGLER,	PENNSYLVANIA.
ROBERT M. PATTON,	ALABAMA.
J. B. DRAKE,	ILLINOIS.
GEORGE BAIN,	MISSOURI.

SECRETARY AND TREASURER.

FREDERICK FRALEY,	PHILADELPHIA.

ENGINEERS AND ARCHITECTS.

HENRY PETTIT, JOS. M. WILSON, H. J. SCHWARZMANN.

PROGRESS OF PHILADELPHIA.

ARCHITECTURE; MUNICIPAL BUILDINGS; STATISTICS.

IN a work devoted to Centennial reminiscences and memorials of Centennial progress, it will not be out of place to introduce some very brief comparisons of the country.

THEN AND NOW.

ONE HUNDRED AND NINETY-THREE YEARS AGO.

In 1677, seven years before the settlement of Philadelphia, William Edmundson, a Friend, traveled southward from New York to the Delaware, in company with a Swede and Indian guide. In attempting to cross from Middletown Point—somewhere about South Amboy—they "lost their way" and were obliged to go back, so as to find the Raritan at any point, and to follow its margin till they came to a small landing from New York, and thence by a path to the falls of the Delaware. "By this means only," says he, "did we find our way, and we saw no tame animals on the route." Twenty years later, in 1698, one of William Penn's companions, in speaking of the infant prosperity of the Quaker settlement, attributed it to "its vast and extended traffique and commerce by sea and land," and then enumerates the distant points whither the vast traffic extended; not Calcutta or Canton or Japan; not Lima or the Amour; but St. Christopher's and Bermuda and Barbados *and Carolina, Virginia, Maryland, New England* and *New York!* Could this humble-minded, primitive Quaker open his eyes and ears now, and behold what we see unmoved every moment of our lives, his agony of surprise would not be less than ours should we see posterity, after the lapse of the same number of years, standing amid the ruins of abandoned railroads and disregarded steamboats, having relapsed into an age of barter.—*N. Y. Herald.*

One hundred years later Elkanah Watson, at the close of the Revolutionary War, "found New York a place of 1,400 houses and 20,000 inhabitants, and Philadelphia, 6,000 houses, *built of brick*, and 50,000 inhabitants."

The style of architecture of this early period is probably illustrated in the old Historical Mansion, at one time the residence of William Penn, and in which his son, John Penn, "the American" was born.

THE SLATE ROOF HOUSE.

This house was also afterwards the residence at different periods of John Hancock and of John Adams. Fifty years later the public taste seems to have been led willing captive by Grecian models, and the United States Bank, now the Custom House, the United States Mint, Merchants' Exchange, Girard

College, and other public buildings were the result. The Centennial buildings, the New Post Office, and new Municipal Halls now in progress, and many private edifices, notably that of the

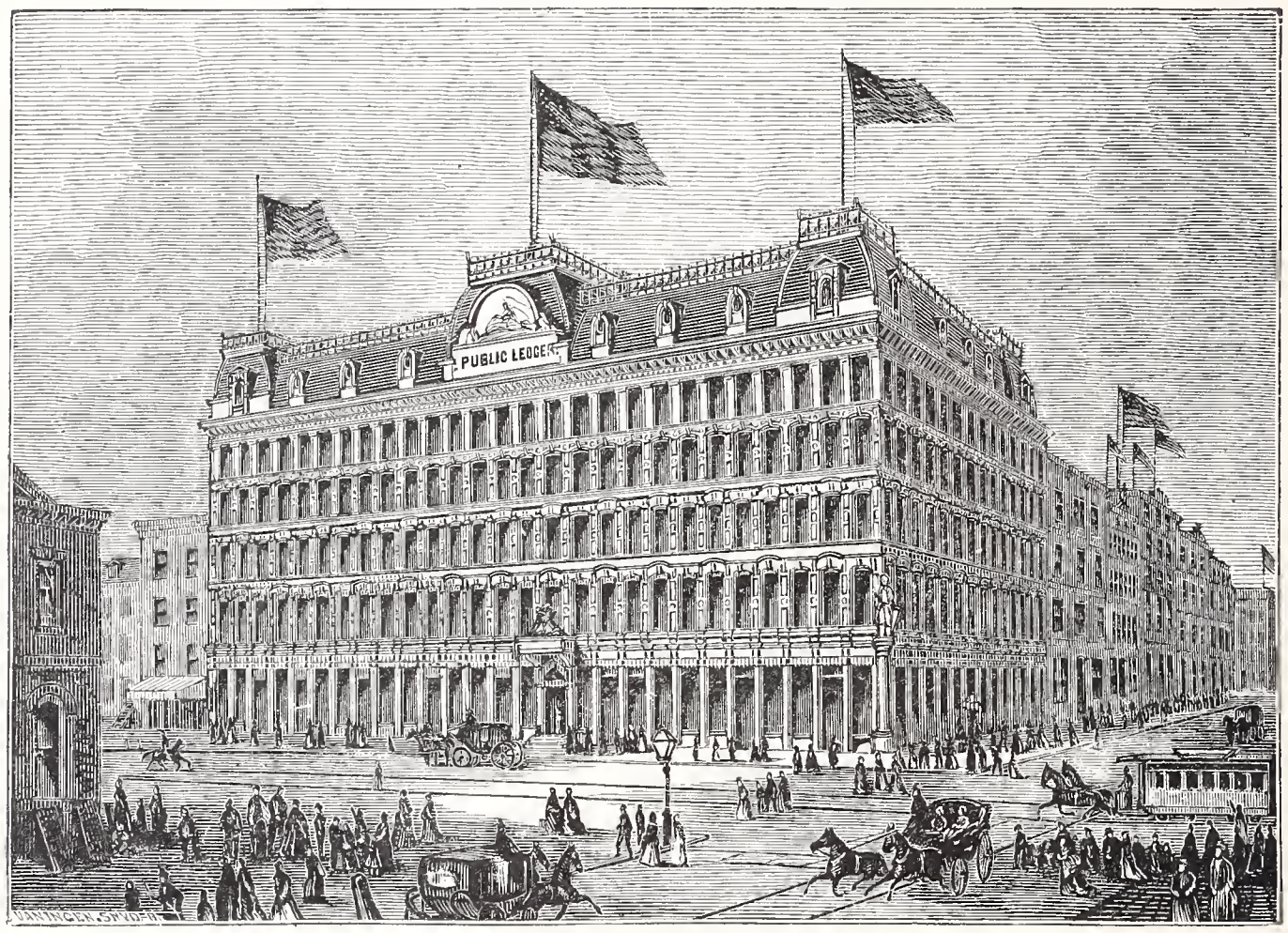
BUILDING OF THE MUTUAL LIFE INSURANCE COMPANY,

Of New York, at the corner of Chestnut and Tenth streets, are evidences of a material change in this respect.

This Company was established in 1842, and under the exceptionally able management of its President, F. S. Winston, and

his efficient assistants, has, with a progress truly wonderful, reached the position of the largest Life Insurance Company in the World; its assets at fair cash valuation reaching the enormous aggregate on the first of January last of $72,446,970.06. Its policies on ordinary life risks have in some cases become self sustaining within the period of *fifteen* years, a result reached by no other Company. Its assets at the present time exceed the capital of the Bank of England, and it is believed to be the largest strictly moneyed corporation in existence.

Another fine structure devoted to business uses is the



PUBLIC LEDGER BUILDING,

Geo. W. Childs, Esq., Proprietor, at the S. W. corner of Sixth and Chestnut streets. The leading paper of Philadelphia, having a daily circulation of over 90,000 copies.

Did space permit it might be interesting to readers, as it always is to visitors, who are invariably received and treated with courtesy; to describe the wonderful process by which this immense

edition is stereotyped and worked off between three and five o'clock in the morning of each day; but it must suffice only to say that every improvement known to the art has been here adopted and is now in use.

THE NEW MUNICIPAL BUILDINGS at the intersection of Market and Broad streets, will by their imposing dimensions and their ornate and magnificent architecture, attract the attention even in the future, of every visitor to the city.

It seems very desirable that some description of them, necessarily imperfect however, be given.

The act providing for the erection of these buildings, passed the Legislature in April, 1870, and received the signature of the then Governor John W. Geary, on the fifth of August following.

By the provisions of this act, Commissioners for the erection of the Public Buildings were appointed, as follows:

Theodore Cuyler, John Rice, Samuel C. Perkins, John Price Wetherill, Lewis C. Cassidy, Henry M. Phillips, William L. Stokes, William Devine, with the Mayor of the City, Hon. D. M. Fox, and the Presidents of Select and Common Councils at the time.

D. M. FOX, *Mayor.*

SAMUEL W. CATTELL, *President of Select Council.*

LOUIS WAGNER, *President of Common Council.*

ON the fourth of July, 1874, the corner stone was laid with grand and imposing Masonic ceremonies. The Committee for preparing a suitable corner stone were:

Samuel C. Perkins, Mahlon H. Dickinson, William Brice, Hiram Miller, and Thomas J. Barger.

The corner stone itself was a fine block of white marble, weighing eight tons; upon the upper side a cavity was made for the reception of a copper box in which the coins and documents were placed, together with the paper, as follows, which forms a concise history of the proceedings of the day, and an interesting record for general information in the future.

CORNER STONE

OF THE

PUBLIC BUILDINGS

OF THE CITY OF PHILADELPHIA,

LAID JULY 4, 1874,

In the presence of the Mayor of the City, the Select and Common Councils, Heads of Departments, and other distinguished Civil, Military and Naval Officials, and a large concourse of Citizens,

By ALFRED R. POTTER, Esq.,

R. W. GRAND MASTER OF MASONS OF PENNSYLVANIA AND MASONIC JURISDICTION THEREUNTO BELONGING ASSISTED BY HIS GRAND OFFICERS, AND ACCORDING TO THE ANCIENT CEREMONIES OF THE CRAFT.

Orator—BENJAMIN HARRIS BREWSTER.

President of the United States—ULYSSES S. GRANT.
Governor of Pennsylvania—JOHN F. HARTRANFT.
Mayor of Philadelphia—WILLIAM S. STOKLEY.

Architect—JOHN McARTHUR, Jr. Superintendent—WILLIAM C. McPHERSON.

COMMISSIONERS FOR THE ERECTION OF THE PUBLIC BUILDINGS.

Act of Assembly, August 5, 1870.

President—SAMUEL C. PERKINS.

THOS. J. BARGER,	LEWIS C. CASSIDY,	THOMAS E. GASKILL,	HIRAM MILLER,
WILLIAM BRICE,	MAHLON H. DICKINSON,	A. WILSON HENSZEY,	RICHARD PELTZ,
SAMUEL W. CATTELL,	ROBT. W. DOWNING,	JOHN L. HILL,	WM. S. STOKLEY

Secretary—Francis De Haes Janvier. *Treasurer*—Peter A. B. Widener.

Solicitor—Charles H. T. Collis.

As it would be out of the power of the writer to improve it; the description of the building given by the distinguished Orator of the day, Hon. Benjamin Harris Brewster, is condensed from his Oration upon that occasion.

He says of this building:—

* * "It is suited for its purpose, it is of sufficient size to answer future wants. It is admirable in its ornaments, while the whole effect is one of massive dignity, worthy of us and our posterity.

"I will here give the dimensions, and a few of the details of this remarkable structure. It is 470 feet from east to west, and 486½ feet from north to south, covering an area, exclusive of the court-yard, of nearly four and a half acres. It is probably larger than any single building on this continent. The superstructure consists of a basement story, 18 feet in height, a principal story, of 36 feet, and an upper story, of 31 feet, surmounted by another of 15 feet. The small rooms opening upon the court-yard are each sub-divided in height into two stories, for the purpose of making useful all the space. The several stories will be approached by four large elevators, placed at the intersections of the leading corridors, to make easy the intercourse of citizens with courts, public offices, and departments of city government. In addition to these means of access there will be a grand staircase in each of the four corners of the building, and one in each of the centre pavilions on the north, south, west and east fronts. The entire structure will contain five hundred and twenty rooms, of suitable dimensions, and fitted with every possible convenience, including heat, light, and ventilation, and the whole is to be absolutely fire-proof and indestructible. All of the departments

now existing will be abundantly supplied, and a vast amount of surplus room will be left for judicial and other city archives, as well as afford room for all of our growing wants. This is as it ought to be. We provide for the present urgent wants, and protect the people hereafter from those inconveniences under which we now suffer, and which expose our records to ruin and decay, while they seriously obstruct and hurt all branches of business and public duty. It is computed that the entire cost of this work will be near ten millions of dollars, and that it will be completed in ten years from the day when the first spadeful of earth was removed.

"To judge of its massive size, I will give you an account of what materials have been consumed in constructing the foundation and the parts of the superstructure you now see before you: 74,000 cubic feet of cement concrete, 636,400 cubic feet of foundation stone, 8,000,000 bricks, 70,000 cubic feet of dressed granite, and 366 tons of iron, including floor beams.

"The excavation for the cellars and foundations required the removal of 141,500 cubic yards of earth. A large quantity of the marble for the superstructure has been prepared, and the corner stone is the first block that has yet been set in the building. Here I will end my details. To be more minute would be tedious and prolix; but this much should be given to properly advise the public.

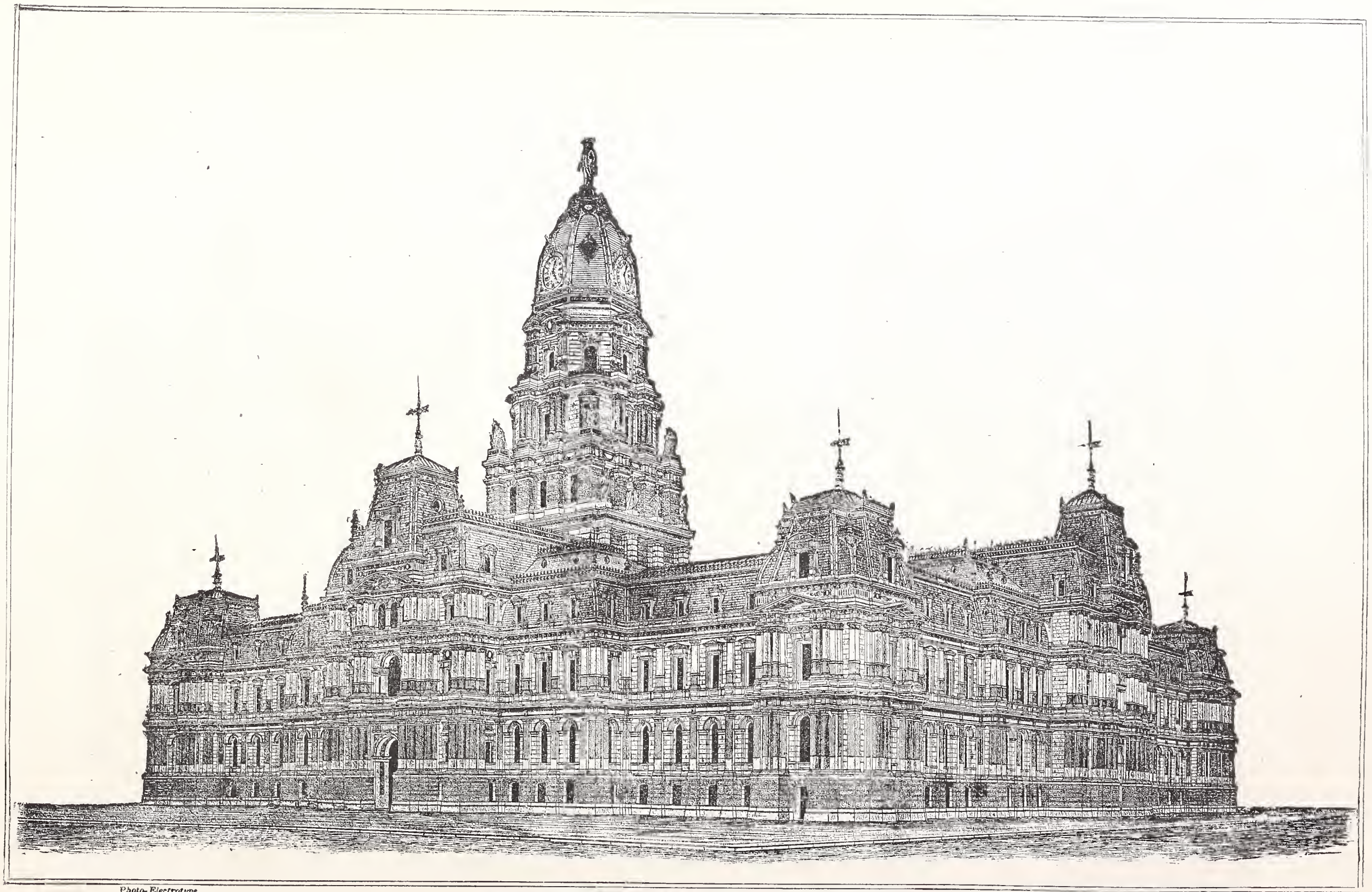
"Let me state with accuracy to what purposes the building will be devoted, and who will occupy it the day it is ready for public use, that you may see and know what are our wants.

"The Mayor will require for the use of his office and of the police at least twelve commodious rooms; the City Council Chambers and their officers will need 15; the City Treasurer, 3; the City Controller, 5; Law Department, 9; Water Depart-

ment, 7; Highways, Bridges and Sewers, 4; Survey Department, 4; Markets and City Property, 2; Building Inspectors, 2; Boiler Inspectors, 2; Health Office, 6; Fire Department, 4; Receiver of Taxes, 5; Police and Firealarm Telegraph, 2; Guardians of the Poor, 3; Port Wardens, 2; City Commissioners, 6; Coroner, 4; Girard Estates, 2; Board of Education, 6; Gas Office, 1; Park Commissioners, 1; Board of Revision, 4; Collector of Delinquent Taxes, 3; Courts, 13 rooms, with accommodations for the Prothonotaries and Clerks, for the Law Library, Witness and Jury rooms, and District Attorney; Recorder of Deeds, 4; Register of Wills, 4; Sheriff, 4.

As it is proper to give some information to the many thousand visitors to our coming jubilee of the character, magnitude and business condition, prospects, and facilities of the city in which they will for a time be domiciled, the following and further extracts from the same admirable discourse are also given as embodying statistics as late and as reliable as can be given, and conveyed in language more concise and more elegant than the writer could hope to command. He says:—

* * * * * "It will now be proper for me to speak a few words of the extent of our City of Homes, as it has been called,—of its large accommodations for its people,—of its great public improvements for public necessities and private comfort. This I will do in a cursory way, as the occasion and the time will not admit of precision and detail; but it should be done, to show how fit this structure in all its magnitude of dimensions is for the community it is intended to supply, and how it harmonizes in all things with that which we have around us and about us in daily use, and how essential it is to construct



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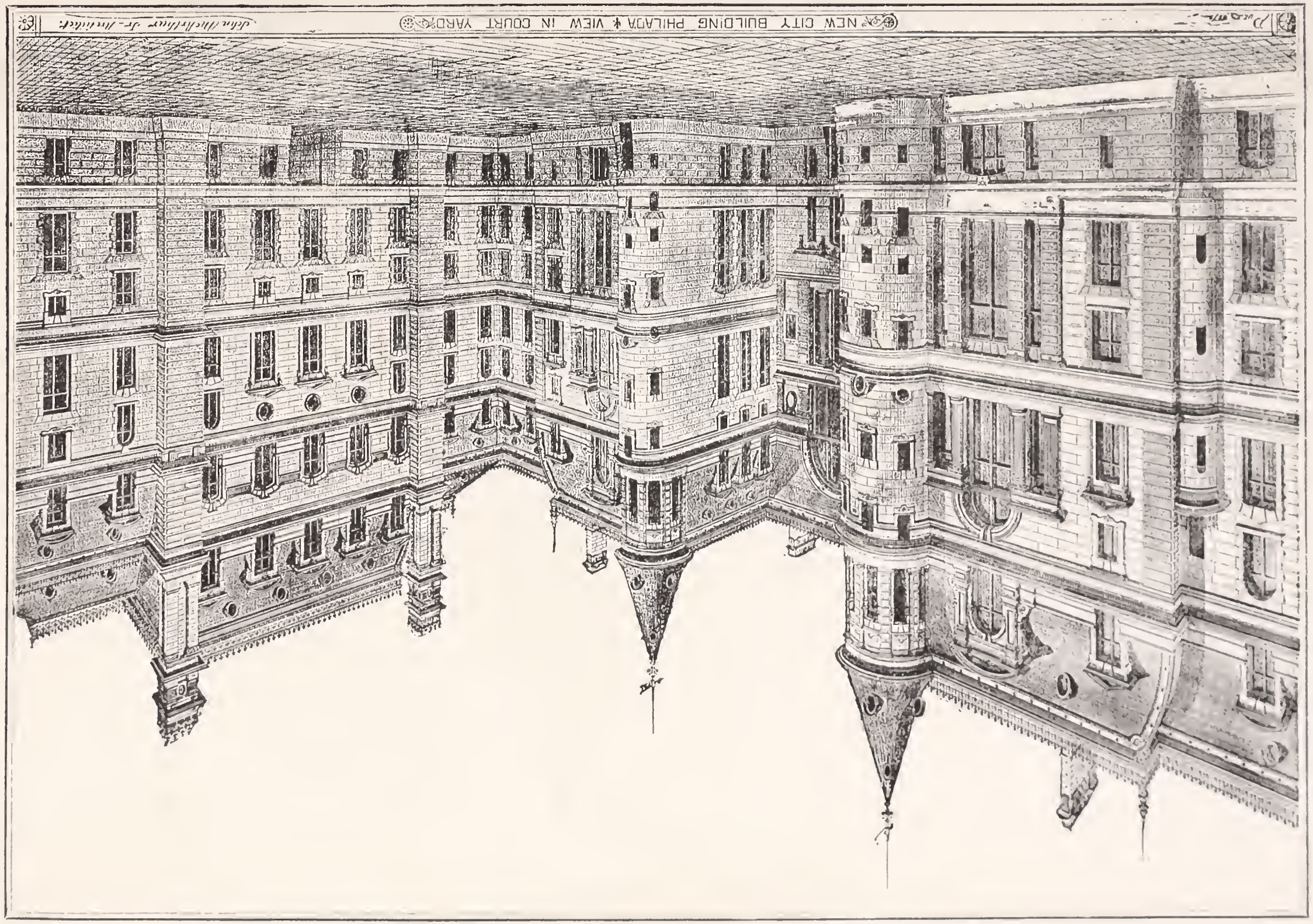
NEW CITY BUILDING PENN SQUARE PHILADELPHIA

JOHN McARTHUR JR ARCHITECT

F. A Wenderoth & Co. 1328 Chesnut St. Philada



NEW CITY BUILDING PHILADA. ✱ VIEW IN COURT YARD

John Hitchcock Jr. Architect.

it as it is designed, if we are to have a provident regard for the manifest wants of the future. I have seen and lived in almost all of the capitals of Europe, and I have read of all of the great cities of the world; but I have never seen or read of such a city as this is. There is no town in the world, of its dimensions or population, and there never has been one, that possesses such accommodations for its people.

"Artisans, and even laborers live with us as they never lived before. Men whose daily earnings in other cities will hardly sustain life and provide a shelter for themselves and their families, except in the most rude, coarse, scanty and crowded way, are here the occupants of single and comfortable dwellings, and thousands of them the owners of their own houses.

"The effect of this upon the mental and moral condition of the citizens is evident, even to transient visitors. We have no such class here as the poor workingman; our city is filled with workmen, independent, prosperous freemen, who bring up families of boys with habits of thrift and industry, to go out into life prepared and resolved to earn homes, because they have enjoyed them in their happy childhood, and with good girls, who are certain of provision for life with a comfortable house for their families, because they are trained to keep those homes with tidiness and economy, and because they are raised with a race of men who honor and love their families, and find their only sense of content in the cultivation of the domestic affections. This is true, every word of it true, of Philadelphia and its workmen. At the beginning of the year 1873, we had 134,740 buildings of all kinds. Of these 124,302 were dwelling houses, occupied by families. They exceed the following cities by the following numbers:

The dwellings exceed in number those of New York, by over 60,000; Brooklyn, by 78,000; St. Louis, by 84,000; Baltimore, by 83,000; Chicago, by 79,000; Boston, by 94,000; Cincinnati, by 99,000.

"This city has a population of near 800,000, and they live in an area of 129 1-8 square miles. It has 1,000 miles of streets and roads opened for use, and over 500 miles of these are paved. It is lighted by near ten thousand gas lamps. The earth beneath conceals and is penetrated by 134 miles of sewers, over 600 miles of gas mains and 546 miles of water pipes. We have over 212 miles of city railways, and near 1,794 city railroad cars passing over these railroads daily, 3,025 steam boilers, over 400 public schools, with suitable buildings, and over 1,600 school teachers, and over 80,000 pupils. We have over 34,000 bath-rooms, most of which are supplied with hot water, and for the use of the water, at low rates, our citizens pay more than a million of dollars annually. We have over 400 places of public worship, and accommodations in them for 300,000 persons.

"We have near 9,000 manufactories, having a capital of $185,000,000, employing 145,000 hands, the annual product of whose labor is over $384,000,000. We exported in 1873, in value, over $34,000,000, and we imported in value over $26,000,000. The amount paid for duties in gold was near eight millions and a half. The real estate, as assessed for taxation, was over $518,000,000, and we collected near $9,000,000 for taxes. Our funded debt, including the gas loan, in January, 1873, was $51,697,147 67, and our annual outlay in 1873, inclusive of interest on our debt, was $7,726,123. We have parks and public squares, and Fairmount Park, which is one of them, contains 2,991 acres, and is one of the largest

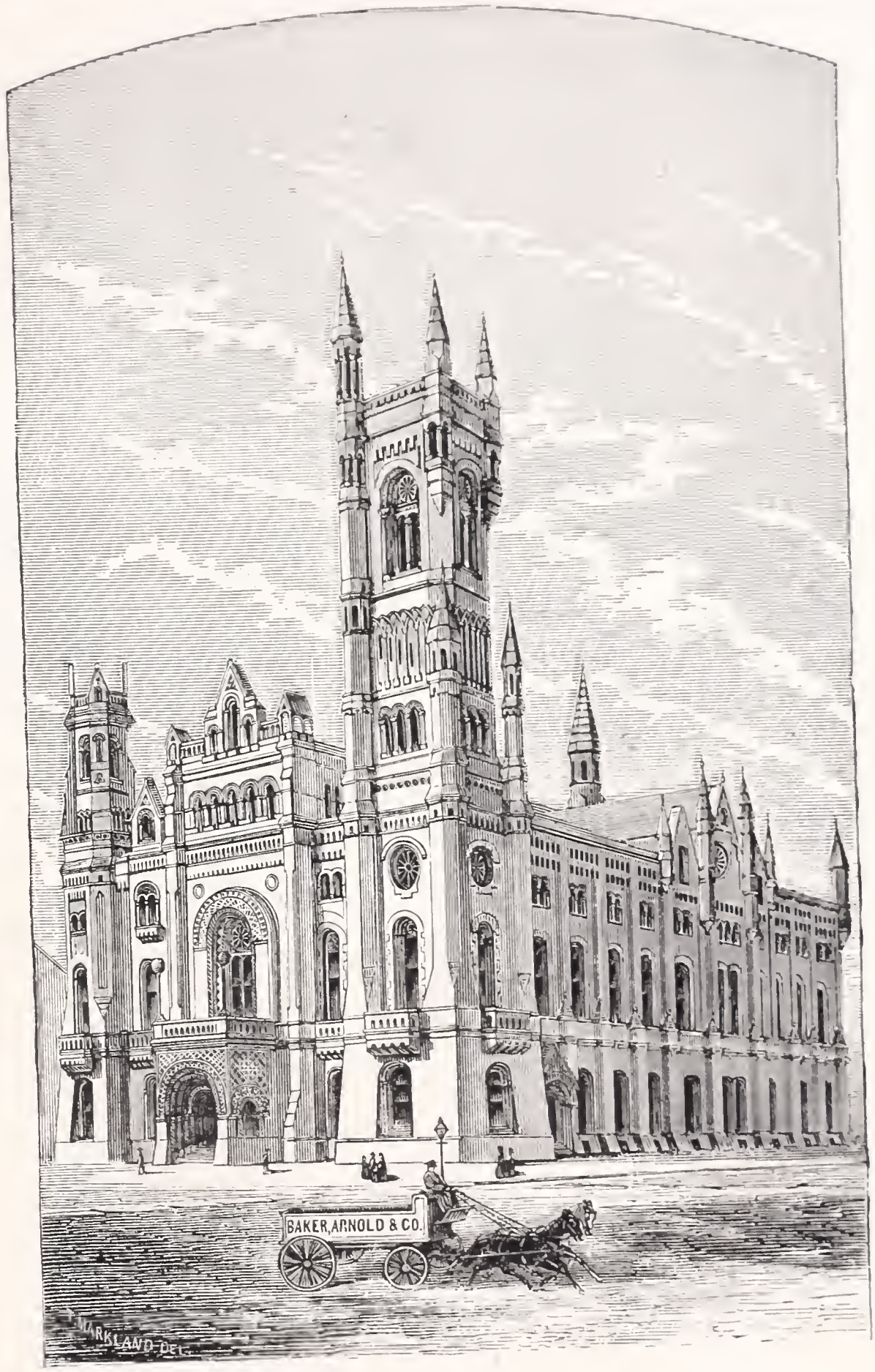
parks in the world, and was enjoyed in 1873 by near 3,000,000 of people.

"From this we can understand for whom we are now building, and why the outlay proposed is provident and necessary. We can also see in a partial way where our money has gone, but we can see with sufficient fulness how providently and judiciously most of it has been expended, when we behold this list of stupendous improvements, millions of which lie beneath the surface of the earth, and millions of which we drive over and walk over, unheeding the cost of the conveniences and comforts we are daily using in the paved, curbed, watered, drained and lighted highways, on which front, for over 2,000 miles, 124,302 neat and comfortable homes."

* * * Early in our career we commanded the foreign and domestic commerce of the colonies, and till 1820 this city was the commercial metropolis of the country. For a time that ascendancy passed away, and New York, by her internal improvements, acquired the trade we had lost. While we thus ruled, we ruled grandly, and we have never forgotten our dignity. The sentiment that then prevailed with our people still prevails. Then they embellished our city with works of architecture, equalled nowhere in the Union in beauty and fitness. In our growth we live up to the example of our ancestors, and have resolved now that for our present necessities, and according to the abundance of our means, we will adorn our city as it was adorned of old with a structure that will fully answer its ends and such as will in ages to come speak for us as with "the tongues of men and angels."

The advancement and development of architectural taste is

further illustrated by another grand edifice and one especially interesting to the whole Brotherhood of Masons



THE NEW MASONIC TEMPLE.

A granite structure 250 feet long, 150 feet wide and three lofty stories in height, divided into spacious Halls with their

appropriate adjacent apartments, toilet rooms, banqueting halls, offices, &c., with various broad staircases and other passages leading to each.

This vast edifice has been erected under the supervision of the following gentlemen: R. W. Samuel C. Perkins, Grand Master of Masons of Pennsylvania, Chairman of the Building Committee; James H. Windrim, Architect of Masonic Temple; and Henry J. White, Chairman of the Sub-Committee on Plans, Estimates and Materials; Thomas Brown and J. Loudenslager.

THE EXTERIOR OF THE TEMPLE.

Its facade, is a perfect specimen of Norman architecture—notably bold, sharp, and elaborate, with not a trace of flatness or inexpression anywhere on its profile. Its most striking features are the two Towers, which flank it, one of them rising to the height of 250 feet; and the wonderfully beautiful Norman Porch, or doorway. The main Tower is so massive, that its foundations were laid 31 feet below the level of the street.

Passing through the Portal, we enter the Temple. The Main Hall sweeps grandly through, 20 feet wide from end to end, 250 feet in length. The oldest, strongest and simplest of the three orders of Grecian Architecture, the Doric, is exemplified here throughout.

The Grand Vestibule is lighted by a gas fixture of an entirely novel and elegant construction, in the shape of a coroneted globe, which with all the gas fixtures in the Temple were made by Messrs. Baker, Arnold & Co., and every chandelier bracket and pendant is in architectural keeping with the style of the Hall in which it is placed—whether Corinthian, Norman, Egyptian, Ionic, Doric or Gothic; a thing which has never been heretofore attempted in this country.

From the Main Hall there spring two majestic staircases, the Grand Staircase from the front, leading to the Grand Lodge and Grand Chapter Rooms, and the Central Staircase from the centre, leading to the various Lodge Halls, and the Asylum of the Commandery, &c. On the right of the Main Hall, and the Southern side of the Temple, are the Grand Secretary's and Grand Treasurer's Rooms, the Grand Lodge Library, and other offices. All of these are models of official utility and elegance.

At the Northwest corner of the Temple is the suite of Rooms of the Grand Master of Masons of Pennsylvania—three in number, a Reception Room, Private Secretary's Room, and his own private Room, with connecting Toilet Room.

THE GRAND BANQUETING HALL

Is on the North side of the Temple, central in the building. It is of the Composite order of architecture, with sixteen columns in pairs running through it, the capitals decorated with semblances of flowers, fruits and game birds. This room, 105 feet in length by 50 in breadth, is most brilliantly illuminated by fifteen chandeliers. In these Baker, Arnold & Co., have furnished not only very beautiful designs but exceedingly appropriate ones. The kitchen, to supply the needed refreshment for the Brethren, is in the basement below the Banqueting Hall.

In the front cellars are the powerful steam heaters and ventilators; which completely supply the important needs they are intended to fill. The fountains all flow filtered iced-water. The ice is kept from direct contact with the water, the latter being passed through large coils of block tin pipes (500 feet) laid in ice in the cellar.

ORIENTAL HALL

Is the only principal Lodge room on the first floor of the

Temple. It is situated at the north-east corner, and is one of the most gorgeous of all the Lodge Halls. It is throughout, from floor to ceiling, and even down to the minutest article of furniture, a brilliant example of Oriental (that is, Arabian, Moorish or Saracenic) Architecture. Everywhere there is superior elegance, lightness, and splendor of ornamentation.

On the first floor of the Temple there is, besides Oriental Hall, a small room called Assembly Hall, fitted up as a Lodge Room.

THE GRAND LODGE LIBRARY

Is a noble room, fitted up with solid walnut book-cases, reading tables, newspaper stands and other suitable articles of library furniture.

The Grand Staircase, leading from the first floor to the principal floor, and directly to the Grand Lodge and Grand Chapter Halls, is a massive structure of iron, with heavy railing of granite finish, flanked by Lisbon marble wainscoting.

Proceeding by this staircase, you reach the landing upon which open the vestibules of the Grand Chapter Room on the right and the Grand Lodge Room on the left.

THE CORINTHIAN OR GRAND LODGE HALL

Is the representative hall of the new Masonic Temple, magnificent in its distances, rich beyond comparison in its architectural adornment, and a fit Masonic home for the brethren who could originate and successfully perfect such a room as this, in such an edifice. It is 105 feet long, 51 feet wide, and 50 feet high, and will seat 400 persons. The furniture of the Grand Lodge Room is constructed of walnut and cedar, covered with blue velvet. A word should be added upon the subject of the admirable ventilation of this and every other room. If there is any

virtue in modern science as applied to the introduction of pure air into and expulsion of vitiated air from rooms, it has not been applied in vain in the Temple.

THE GRAND CHAPTER HALL

Is exquisitely finished in Italian Renaissance style of architecture. It is a fitting companion room to the Grand Lodge Hall. In size it is 90 feet long, 50 feet wide, and 50 feet high. This hall is lighted by one large chandelier over 10 feet in diameter, 17 feet long, with 36 burners and two smaller ones 12-light each, two 6-light hanging brackets and two candlebras 7-light each, 10 feet high. The central gas-fixture (made by Baker, Arnold & Co.,) is the largest and grandest one in this country.

EGYPTIAN HALL

Is, without doubt, the most marvelous hall in the Temple. It is not so large as either of the Grand Halls; but the style of its architecture is so new, *because* so *old* and unusual to us, that at first sight it causes the greatest surprise and wonder. It is a marvel of massive grandeur and solidity. Twelve huge columns encircle the hall. They are *fac-similes* of those of the chief ancient Temples on the Nile, Luxor, Karnac and Edfou. Large photographs were procured of all of these famous structures, from which models they have been constructed. In other words, *Egyptian Hall is an architectural key to the greatest wonders left by the ancient Egyptian builders.*

THE FURNITURE OF EGYPTIAN HALL

Is as truly Egyptian as its columns and walls. The throne, or chair of the Master, is massive and imposing, made of gilded ebony, as is all of the furniture of this room. Egyptian Hall is the central room at the east end of the principal floor, and is

65 feet long by 50 feet wide, and 30 feet high. It will seat 200 brethren.

IONIC HALL

Is an example of the beauty of chasteness in architecture. Its style is pure, graceful and elegant, but unelaborate; and it is situated at the south-east corner on the principal floor.

THE FURNITURE OF IONIC HALL

Is composed exclusively of natural woods—walnut, with butternut and cedar sinkings, covered with blue and gold striped tapestry; while the wood work is finished in white china gloss.

NORMAN HALL

Is situated at the north-east corner of the principal floor of the Temple. The ornamentation as of the front and porch of the Temple, and this Hall, are examples of the decorative style of Norman architecture, which are without a parallel in this country. The whole room, with its furniture, is a unit in architectural style.

THE ASYLUM OF THE COMMANDERIES

Is on the floor above the principal floor, at the east end of the Temple. The Commandery Room is a magnificent example of Gothic architecture, and if we had not already said that every other Hall in the Temple was the handsomest of all, we should most assuredly award the supreme honor to this one. This is the only

GOTHIC HALL

In the Masonic Temple. Its pointed arches and groins afford a relative variety and richness which gratify the eye and the mind.

THE CHANDELIERS

In the Commandery Room are all crosses and crowns, which at night are illuminated in fire, displaying the skill and artistic conception of the manufacturers, Messrs. Baker, Arnold & Co. And they are true symbols in keeping with the purposes of the room.

THE BANQUETING HALL

Of the Commandery is approached from the Commandery by a magnificent arched recessed porch, and through a portcullis door.

THE RED CROSS, OR COUNCIL CHAMBER,

In the Asylum of the Knights Templars, is in the new Temple, a distinct Hall, with its proper approaches and facilities for conferring the degree of Knight of the Red Cross. This room is in size 40 by 25 feet, and 25 feet high. The Asylum has several smaller rooms connected with it.

CENTRAL MAIN HALL.

In this hall statues of Faith, Hope and Charity rest upon the upper arcade.

NORTHWEST HALL

Is one of the smaller Lodge Rooms, for use on special meeting nights. It is situated over the lobby of the Grand Lodge, and in size is 29 by 42 feet.

SOUTHWEST HALL,

A smaller Chapter Room, over the lobby of the Grand Chapter, is in size 18 by 33 feet.

THE REGALIA ROOM.

A very valuable room in the new Temple, is in the entresol section, and approached from the Central Hall, on the principal

floor. Here are preserved, in capacious fire-proofs, all the warrants, archives, jewels and regalia of the Grand Lodge and Grand Chapter, and of the various subordinate Mark Lodges and Blue Lodges; so that even if it should be possible at any time for a fire to devastate the Temple, all these most valuable Masonic articles will be preserved.

The loft of the Temple contains four huge cedar water-tanks, containing in all 16,000 gallons of water, weighing 60 tons. Water-pipes extend through it, with fire-plugs and hose attached.

A FIRE ESCAPE

Leads from the upper floor to the first floor, by means of which any one in the Temple could pass, should the main stairways be impassable.

There is an elevator operating from the basement of the Temple up to the kitchen of the Commandery on the highest floor.

The staircases throughout are broad and stately, and constructed of iron, on the most approved principles.

The marble tiling and wainscoting throughout should be specially mentioned. It is of beautiful highly polished Lisbon marble, and few buildings certainly can vie in splendor with our New Masonic Temple, whether we consider its grand entrance, its palatial halls and stairways, or its principal rooms.

RECENT STORE ARCHITECTURE has also in late years taken an entirely "new departure," and the contracted area and modest elevation of many ancient "shops" have been consolidated and united under one roof, and within walls of colossal and imposing dimensions not unworthy of a place beside those of any other

metropolitan city. One of these, and not the least, is the store, Nos. 811, 813 and 815 Market street, of

HOOD, BONBRIGHT & CO.

THEIR building is sixty-six feet front and three hundred and six feet deep to a fifty foot street, (Filbert street,) they employ

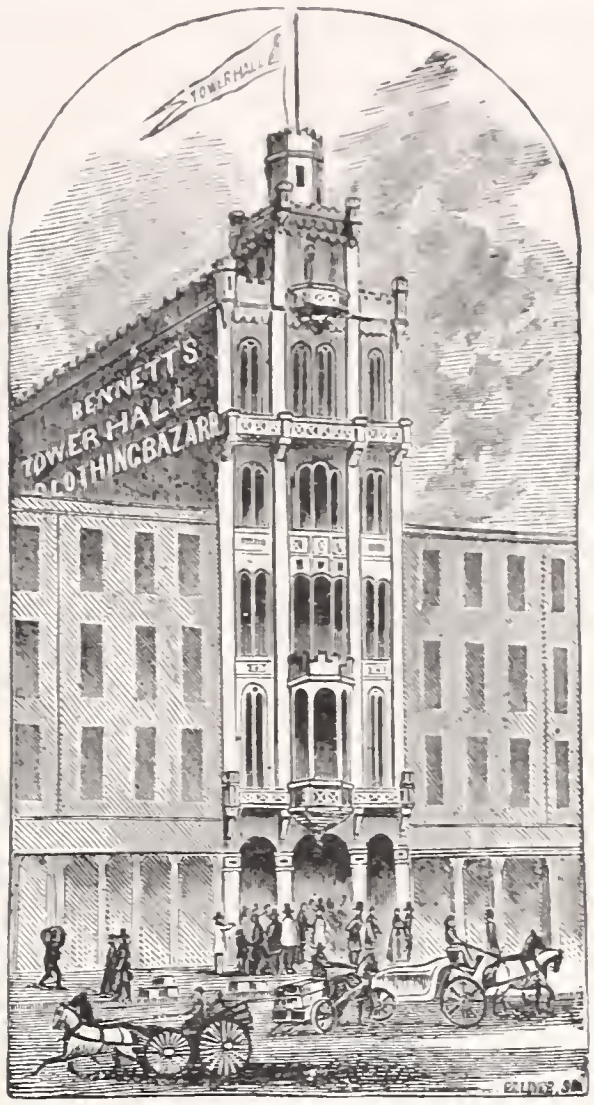
a very large force in a perfectly systematized organization, each department having its own chief, and its exclusive buyer as well as its own corps of salesmen. The building is lighted in a very remarkably perfect manner, having no cross-lights, is ventilated after the most approved method adopted for the same purpose, after much scientific inquiry, by the United States House of Representatives, and is from basement story to the fifth loft replete with every modern convenience to facilitate business, and contribute to the health and comfort of the persons employed as well as of visitors and customers. The floor space of this warehouse is 121,176 square feet, or almost three acres.

Another very imposing building,—one of the most so of any on this (Market) street—is that of the enterprising and exceedingly popular Publishing and Bookselling house of Claxton, Remsen & Haffelfinger, Nos. 624, 626 & 628 Market street.

This store has an iron front of very pleasing design and extensive proportions; and is admirably adapted to the requirements of the wide-spread correspondence of a house ranking among the very first in that business.

This firm represents in succession the late successful Booksellers and Publishers, John Grigg, whose trusted and confidential assistants they were; and the house of John Warner, still further back. The reputation of these their predecessors has suffered no detriment at their hands. They distribute a vast quantity of books and stationery, of which their own publications, nine hundred in number, form no inconsiderable part. Among them the following of their recent publications may be mentioned: The Household Treasury, a manuscript receipt-book for housekeepers; Flanders on Fire Insurance; Riddell, Practical Carpenter and Joiner, etc., etc.

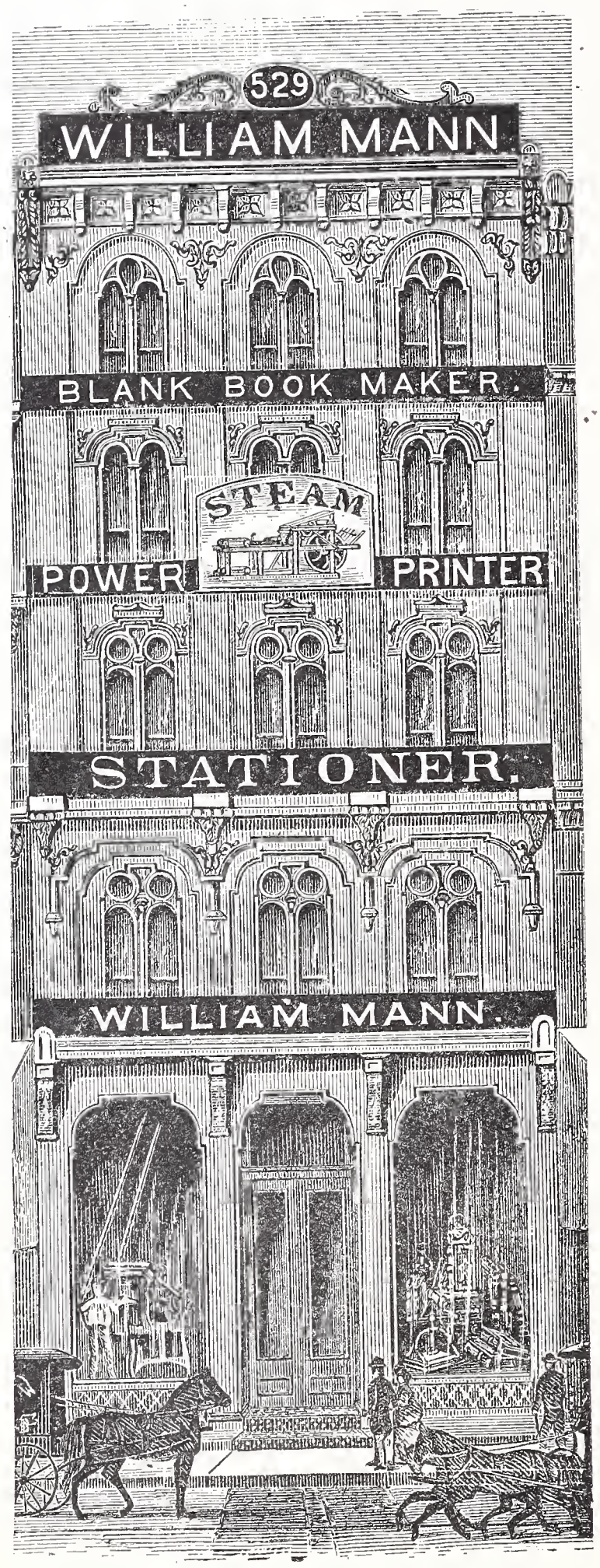
ANOTHER store on this street, which their owners and occupants, Messrs. BENNETT & Co., have appropriately named TOWER HALL, is situated at No. 518 Market street, a locality consecrated to perpetual remembrance as that whereon stood the house occupied by GEORGE WASHINGTON when President of the United States; now devoted to the manufacture and sale of ready-made clothing. This branch of business commenced by BENNETT & Co., in 1844, may almost be said to have been created by them; for previous to that time, ready-made clothing, commonly called "slop-shop" clothing, was almost confined to the very common and coarse wear of sailors and "long-shoremen," sold from shops located near the waterside lying along the river, especially the Delaware.



Messrs. BENNETT & Co., adopted and put in practice a plan of their own, then considered a great innovation and a doubtful experiment, that of manufacturing and keeping constantly on hand a supply of ready-made clothing of the best materials and workmanship, adapted to the wants alike of the rich and the necessities of the poor; but all of them of good materials, reliably and artistically made.

From these small beginnings this important branch of business had grown to an aggregate in the year 1866, of $19,217,688, (and paid an internal revenue tax of $746,124,) an amount probably since nearly or quite doubled.

ANOTHER store of fine architectural proportions and exterior design, is that of WILLIAM MANN, No. 529 MARKET STREET.



This extensive establishment is devoted to the manufacture and sale of Blank Books and Stationery of every kind. Each of the six floors presents a space of 24 feet front by 200 feet deep, and all are fully occupied from basement to fifth story by the various departments of the business.

This establishment regularly supplies upwards of eighteen hundred banks, situated in all sections of our extended country from Maine to California, with their Blanks and Blank Books.

Besides these they also furnish *railroad companies, merchants, manufacturers, business and professional men* with all their requisites, such as *blank books, printing, lithographing and stationery of every description.* The machinery comprises twenty printing presses, adapted to every kind of commercial printing; blank books, bill-heads, cards, &c.; eight ruling machines;

seven paging and numbering machines; all of them embracing the latest improvements and operated by a steam engine of forty-horse power. They also have in use a powerful hydraulic press made by William Sellers & Co., of this city.

An idea of the extent of the business in this department may be formed from the fact that millions of check-blanks are here annually printed. These check-sheets are all so *perforated* as to be easily torn off like postage stamps. Mr. Mann is also the patentee and manufacturer of a peculiar quality of copying paper possessing extraordinary strength, which can be written on with pen and ink, making an article of great convenience and of ready and extended sale.

Many of the account books made in this establishment are of very great weight, necessarily requiring the binding of them to be of a character the most solid, strong and substantial. The ruling of these, where the various colored lines and cross-lines of ponderous ledgers, as well as smaller books, are accurately and beautifully marked out by the most perfect mechanical contrivances, is a curious and interesting process. This branch of the business occupies the entire fifth story, to visit which and other parts of the building a steam elevator is in constant use.

Each department is placed under the immediate supervision of a foreman thoroughly conversant with all the details of his particular branch of the business, who acts under orders requiring of him the exact performance of every part of the work entrusted to his care.

The business has been established and uniformly conducted upon a strictly one price principle, from which there is no departure. A firm at a distance can have their orders by mail filled as if present in person; in addition to their business in blank books and stationery they also execute orders for all manner of printing.

It may be seen by reference to the preamble of the Act of Congress creating the Centennial Commission, (page 34,) that the reason assigned for it was, that "it is deemed fitting that the first Century of our National existence shall be commemorated by an Exhibition of the natural resources of the Country and their development, and of its progress in those arts which benefit mankind, in comparison with those of older nations." In accordance with this view it is proper to notice in this work, though necessarily in a very concise and insufficient degree, some representation of that progress and of that development.

One hundred years ago the population of the Colonies was confined to a narrow belt skirting the Atlantic, now, a thousand miles west of its then western limit exist cities of truly wonderful activity, possessing not only the great establishments devoted to the manufacture of heavy articles, and such as are necessary to an agricultural and local consumption; as the reaping and mowing machine, and the plow moved by steam; but our foreign exhibitors will find themselves confronted with that most delicate and admirable instrument, the watch, in its most perfect form, direct from the workshop on the prairies which a few years since were the home of the bison and the prairie dog alone.

One hundred years ago the great staple cotton, was only raised on the plantation for domestic use, and in such quantities as could be "picked" to force it from the seed, at the rate of a pound or two a day, by the hand of the infirm and aged not capable of out door work—now it has assumed in the Commerce of this country and the world, through inventions entirely American, (which almost annihilates this prohibitory expense) the foremost place of all the products of agriculture; and though cotton is not king as has been claimed, yet it has

become in seventy years, through the cotton gin, the invention of the Yankee school-master, Whitney, the great regulator of the exchanges of a continent. They will also find on exhibition machines carrying both cotton and wool through all stages from the raw material to the perfect cloth; such it is believed as unbiassed judges will decide to compare favorably with the most advanced examples of foreign make brought into friendly competition.

The old lady drawing the hand card, the one over the other through the day with the result of two pounds of "rolls," has given place to the carding engine, which with the condenser and with the attendance of one female in the same time produces 200 lbs. of roven; and though the cotton or wool card changed from the flat horizontal surface of the hand card to the use of a revolving cylinder, (the basis of all improvement,) was an English invention, it has been improved in this country by successive and rapid steps until scarcely anything of its original form is left.

In spinning equally great have been the improvements.*

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* As an illustration of this the following notice of a machine calculated to spin either "warp" or "filling," the manufacture of the *Bridesburg Machine Works*, in the 25th Ward of the City of Philadelphia, from the pen of a most accomplished and capable expert in that line, Mr. Samuel Webber, of Manchester, New Hampshire, is inserted.

From this our foreign friends and rivals will perceive that they are to meet competitors not unworthy their best efforts if they desire to receive the palm of superior excellence.

"The statement that some of the mills were able to dispense with the mule by substituting other machinery for the mules, will naturally cause some inquiry how, and to what extent, that can be done? The mule, which may be called the English mode of spinning, in distinction from the frame, or throstle, which has been generally used in America, has been of late years largely introduced in this country from motives of economy and from its superior adaptability to produce weft yarn in a form directly fitted for the weaver. The power required by it is much less than by the frames, either throstle or ring, which have been commonly used, and it has been supposed to be the only machine by which a soft cop of "weft" or "filling yarn," directly adapted to the shuttle, can be produced.

"Under the old "Waltham" or "Lowell" system the yarn for warp and weft was spun on frames of similar construction, and the weft yarn which was twisted was afterwards wound on

Pursuing the manufacture of cotton and wool still further, our foreign visitors will find the power-loom, as well as the spinning machinery, greatly improved.

Upon this subject the *Manufacturer and Builder* of New York, says:—

"In the decade following 1830, immense progress was made in machinery, especially that for working cotton, the spindles were revolved with much greater velocity, and their products were nearly doubled. The loss from waste during spinning and weaving was also decreased, so that at Lowell it was reduced to only 11 per cent. The product of the power-looms was enormously increased, as well in quality as in quantity."

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a "shuttle bobbin" or "quill." The ordinary ring frame has been adopted to spin a "shuttle bobbin," and has been used to some extent for that purpose, but has not been able to compete successfully with the mule, except it be on very coarse yarns. The improvements made in ring spinning during the last four years by Messrs. Pearl, Sawyer and others have, however, entirely changed the position of affairs, and the improved light ring spindle is now able to accomplish the same work as the mule.

"Taking the ordinary "heavy domestics," or goods weighing 2.80 yards per pound, yarn averaging No. 13, at the Appleton mills, Lowell, a "Platt" mule (one of the most popular kinds) spun 278 inches of yarn per minute, with an expenditure of 2.83 feet pound per spindle per second, or 194 spindles per horse power, by my tests with dynamometer. At the same mills, the Sawyer spinning frame spun 330 inches of yarn per minute, with 2.54 feet pound per second per spindle, or 216 spindles per horse-power, and a considerably less cost for labor. At the Stark mills, Manchester, N. H., a weft frame, built by the BRIDESBURG MANUFACTURING COMPANY of Philadelphia, gave 330 inches of yarn per minute with 2.80 feet pound per second per spindle, or 196 spindles per horse-power, and has been so satisfactory to Mr. Adam, the agent, after two years' trial, that he has just put in 2,500 more spindles, which are now producing weft, in form for the shuttle, at a great saving of expense, and equal in quality to any mule yarn.

"For coarse yarns the question seems to be practically settled. So far as I have made any tests of power on finer numbers the results are these: At the Granite mills, Fall River, the Platt mule (as before), on No. 36 weft, producing 224 inches yarn per minute, requires 2.48 feet pound per spindle, or 224 spindles per horse-power. Mr. Francis, of Lowell, obtained almost exactly the same results, with the same mule, at the Merrimac Company's mills. An "EXCELSIOR" spinning frame, built by the BRIDESBURG MANUFACTURING COMPANY, at the Weetamoe mills, Fall River, like the frame at the Stark mills, but adapted to finer yarn, gave by test 270 inches of yarn per minute, at 3.14 feet pound per spindle, or 175 spindles per horse-power. At the same speed as the mules, by the laws governing the relation of power to velocity, it would have required 2 feet pound per second per spindle, or 275 spindles per horse-power.

"This frame has been under trial in Fall River, and the cloth wove from yarn spun on it was not to be distinguished from the best "mule weft" by the most experienced judges. With a single frame it would be difficult to ascertain exactly the cost. Enough has been found out to show that the improved light *spindle ring frame* will produce yarn as soft, as cheaply and with less waste than the mule. The experiments have been made, and time is only required to get the frames in operation."

"A very important improvement was also made at this time in Birmingham, Conn., by the *Howe Pin Manufacturing Company*, in producing *solid headed* pins, reducing the cost of production one-half, whilst the article was worth much more, as it abolished the annoyance of the slipping down of loose pin heads while in use."

But it has not been in machinery alone that American ingenuity has developed these important results, though a volume might be filled with its history. The sewing machine, the reaper, the application of steam to the propulsion of vessels, and that other great invention, the great *practical* telegraphic instrument of Professor Morse, which has entirely eclipsed and supplanted all competitors; all these will confront our rivals and challenge their best efforts. The same authority in regard to another subject demanding not alone dexterity of manipulation, but the application of high scientific attainments, says :—

"At the end of the decade in question, there were in New England nearly 100 *printing, dyeing and bleaching establishments*, and so skillful were the manufacturers in imitating new foreign designs, and so rapid in executing them, that the New York importers of choice styles were often undersold in a few days by the domestic commission houses. As a striking illustration of Yankee enterprise, we will mention one instance: On February 1, 1840, a new pattern of muslin delaine arrived from France in New York, and was offered by the importer at 14 cents per yard by the case. The agent of the Rhode Island Calico-Printing Establishment sent a piece of the new goods to Providence the day after their arrival; in sixteen days' time he had the same style of goods, of equal fabric, in New York, selling it at 10 cents per yard. The manufacturer had only ten days in which to engrave the new pattern on the steel plate, from which the engraving was raised on a steel cylinder, then hardened, and made ready to be impressed on the copper cylinder, from which the printing was done; the compound of the ingredients for the colors had in the meantime to be found by chemical analysis, the colors prepared, the cloth printed, dried, made ready, and cased for the market."

It is said that the carpet manufacturers of England will not bring forward their goods for competition at our Centennial, giving our tariff policy as a reason.

It is to be hoped this is not true, as there is no branch of manufacture better deserving of careful study, and none in

which they would be met in friendly rivalry with greater alacrity than by the carpet manufacturers of Lowell and of this city.

The Glen-Echo Mills of McCallum, Crease & Sloan; the works of Leedom, Shaw & Stewart, and especially those of the Messrs. Dobson & Sons, all of this city, will in all the qualities and grades excite the admiration of visitors of all classes, whether critical judges or casual observers. The latter house, irrespective of panics and of "depression in business," turn out one hundred thousand dollars worth per month, and at the present time, their production is engaged three months ahead.

But in iron we shall, in production and manufacture, probably exhibit the greatest advance; it was one of the moving causes of our separation from our "mother country;" not only that her taxation policy was oppressive, but that she by every means discouraged manufactures, carrying this repressive policy to such extreme that it was said, that if it were possible, the British Parliament would require the horses of the colonists to be sent to England to be shod.

So effective had this policy of repression been, that one hundred years ago, with unlimited mineral resources, it is believed that the only furnaces and forges for the conversion of iron ores were those of Salisbury, in Connecticut, and one or two localities in Pennsylvania.*

Some statistics of the present state of the iron industry of the country are inserted below, for which we are indebted to the Secretary of the American Iron and Steel Association, and a compendious abstract of some other branches of industry from other authentic sources.

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*Now the manufacturing establishments of all kinds number 252,158, with 2,053,996 hands, producing in value $4,232,325,442; driven by 92,909 steam engines and water wheels of 2,388,832 horse power.

During the year past the production of pig iron in the United States has been 2,868,272 tons, of this,

In Pennsylvania, ...	1,389,573 tons.
The production of R. R. iron, . .	890,077 tons.

These rails were the production of eighteen different state of the Union.

During the same year, 1873, two very notable iron bridges were built. One the Girard Avenue Bridge, in Philadelphia, crossing the Schuylkill, built by Clarke, Reeves & Co., of Phœnixville and Philadelphia. It is 100 feet wide and 1,000 feet in length, supported by four piers and two abutments.

Strangers will admire its beauty and strength, as do citizens.

The other remarkable bridge structure alluded to spans the Mississippi at St. Louis. This bridge is "a marvel of engineering boldness and mechanical skill. The distance from abutment to abutment is 1,589 feet; it is from 78 feet to 110 feet above the water, and the total height for the western portion 116 feet, and for the eastern 171 feet. It is a two story bridge, and carries two railroad tracks, and accommodates four street cars or wagons abreast." The builders were the Keystone Bridge Company, at Pittsburg.

Of iron ship-building firms there are fifteen in the United States, of which, five of the largest are in Philadelphia.

But the progress and condition of productive power is probably better illustrated by the state of the export trade in those branches than by any other test; since, by this is its strength demonstrated in fair competition with the industry of the world.

The following has been the export trade in iron and its manufactures during the year 1874, by which it will be seen that

although not large in comparison with the great agricultural export it exhibits a fair beginning.

EXPORTS IN FISCAL YEARS—CURRENCY VALUES.

COMMODITIES—VALUES.	1874.
IRON, AND MANUFACTURES OF:	
Pig,	$ 414,728
Bar,	173,168
Boiler plate,	13,440
Railroad bars and rails,	25,356
Sheet, band and hoop,	11,082
Castings not specified,	226,288
Car wheels,	189,869
Stoves and parts of,	102,398
Steam engines, locomotives,	1,147,366
Steam engines, stationary,	74,749
Boilers, separate from engines,	127,992
Machinery not specified,	3,357,909
Nails and spikes,	410,850
All other manufactures of iron,	3,303,499
STEEL AND MANUFACTURES OF:	
Ingots, bars, sheets, and wire,	26,691
Cutlery,	47,162
Edge tools,	941,016
Files and saws,	21,496
Muskets, pistols, rifles, sporting guns,	2,340,138
Manufactures of steel not specified,	225,457
Total values,	$13,180,654

But a limitation of space will only allow the mention of some of the important establishments devoted to the manufacture of iron, somewhat in detail.

The first of these which will be named is that of Morris, Tasker & Co., at Philadelphia, Pennsylvania, and New Castle, Delaware; the "Pascal" and the "Tasker" Works.

Besides the particulars mentioned on pages further on we quote from the *Exchange and Review* some facts not there mentioned.

"This house possesses the most ample facilities for erecting

a gas works complete from the very beginning, *the retorts* and *buildings* involved, to the *gas-holder* for storing the gas; and, not to stop here—for the *pipes* for *supplying* and *distributing* it from the works to the house of the consumer, with all the variety of *fittings of cast or wrought iron* which can be imagined, and even the *tools* for the *gas-fitter's trade*, are here produced. In the construction of *hot water* and *steam heating* apparatus, the establishment has long been famous. One of the forms of *hot-water furnaces* designed by Mr. Thomas T. Tasker, formerly of the firm, has received most flattering commendation from the Committee of Science and Arts of the Franklin Institute.

Of the many special devices originated or manufactured by this establishment, those connected with *heating* and *ventilating* appliances, but especially those pertaining to the manufacture and proper distribution of coal-gas, possess great interest. In the latter branch of industry, the works supply everything which is in the smallest degree connected with it, as a glance at the catalogue of innumerable items will suffice to show. To illustrate the facilities possessed by them in erecting gas-works, and the advantages which they can afford to those desiring to introduce gas into towns or cities, a brief condensation in which is enumerated a few of the most important adjuncts culled from the catalogue, will be given. Here are named, among numerous less important items, *retorts* and all casting and wrought-iron work required for setting them, on the latest plan; *tar-gates; wrought-iron stand-pipes; retort lids; coke wagons;* and *stokers' tools; exhausters* and *compensators; purifiers* capable of purifying from 1,000 to 2,000,000 cubic feet of gas daily, with either *wet* or *dry lime*, or *oxide of iron; carriages* designed for lifting and removing the covers of purifiers, and arranged either for floor or overhead use; *meters*, square and round, of any

capacity; *gas-holders*, single-lift or telescope, with cast or wrought iron suspension frame; *station governors*, with regulating and indicating columns for inlet and outlet pipes; and *dry governors*, with flexible diaphragms for underground pipes; *stop-valves; centre-seals, etc.* In the last item, the establishment possesses the exclusive control of the manufacture of the improved forms of valves designed by Mr. P. Munzinger (who has for years been connected with the works,) which designs have had almost universal introduction into gas-works, on account of various advantages.

The valves are all constructed with water-seal compartments, to pass the gas through the proper channels, without leakage, with drip-chambers to catch the water of condensation, tar and ammoniacal liquor, and with a loose or circular valve to control the direction of the flow of gas.

Material used in the manufacture of wrought-iron tubes, also number of persons actually employed at Pascal Iron Works during 1872:—

Men employed one year, at Pascal Iron Works,.....1,563

Iron used, 7,500 tons charcoal iron.
10,051 ¼ tons puddled iron.
5,625 tons pig iron.

Men, one year.

Giving employment to.....1,307

There also enters into production of finished iron and pig iron:

COAL.

37,500	tons consumed	at Pascal Iron Works in making tubes.		
46,875	"	"	in making	9,375 tons blooms.
9,375	"	"	"	7,500 tons charcoal iron.
37,142½	"	"	"	18,571 ¼ tons pig iron.
20,102½	"	"	"	10,051 ¼ tons puddled iron.
150,995	tons, giving employment to			

Men, one year.

150,995 tons, giving employment to.....1,006

Total of labor one year,.....3,876

PASCAL IRON WORKS, Philadelphia, and TASKER IRON WORKS, Newcastle, Delaware.—*Gas Works Machinery, Gas and Steam Fittings*, and *Wrought Iron Welded Tubes*, Plain, Galvanized, and *Rubber-Coated*, for Gas, Steam, and Water.

PASCAL IRON WORKS,

located at Fifth and Tasker streets, have long ranked among the largest and most widely known of the manufacturing establishments of Philadelphia. They date their origin from the year 1821, when Stephen P. Morris commenced the manufacture of stoves and grates in the city of Philadelphia, but it was not until about 1835, when Thomas T. Tasker, Sr., had become associated in business with Stephen P., and Henry Morris, and they had embarked in the manufacture of Gas Pipe, which, up to that time, had been altogether imported from England, that the works assumed a distinctive and novel character, which, in process of time, culminated in a world-wide celebrity.

For some years Messrs. Morris, Tasker & Co. were the only manufacturers of gas pipe and gas fittings in this country, and a disposition to experiment and risk capital in pioneer enterprises has continued to be a characteristic trait of the leading members of the firm. The production of gas pipe was followed by the construction of machinery for generating, washing, and purifying illuminating gas, and the firm have now ample facilities for erecting gas works complete from the very beginning. Then they commenced the manufacture of pipes for other purposes, tubes for conveying water, lap-welded boiler tubes, hot water apparatus of various kinds for heating dwellings and manufactories, until, in time, the establishment produced every variety of apparatus required to light, heat, ventilate, and supply with water, public and private buildings of every description. As the business expanded in amount, the capacity of the works was from time to time increased, until, recently, the buildings covered an area of nearly three squares, and the machinery in them required for its operative force seven steam engines with twelve boilers, representing a total aggregate of one thousand horse power. In one year these works consumed over 35,000 tons of coal, 8000 tons of puddled iron, 6000 tons of charcoal, and 4500 tons of pig iron, and furnished employment to over 1600 men.

The manufacture of wrought iron pipe, in all its forms, is a highly complex operation, requiring a variety of novel and special machinery; and the utmost care and severe tests are employed to insure the quality of a tube before it is sent to the warehouse. In the production of *Boiler Tubes*, which is one of the specialties of this firm, a joint of extraordinary strength, known as the "lap-weld," is given, rendering them as homogeneous in structure as though no joint had been effected. The machines for cutting the screws, of which there are many in this establishment, are exceedingly interesting, and combine, under the management of one skilled workman, a number of separate functions. The same machine that cuts off the end of the pipe squarely, cuts the screw-thread upon it; and the motion being reversed to remove the freshly-cut thread from the dies, the other end of the pipe, previously furnished with a thread, is, by the reversed motion, screwed into the socket. With the screw-

cutting machines in this establishment, it is possible to turn out over 6000 finished pipes per day; each of them requiring but the attendance of one workman.

There are some half-dozen testing machines in the finishing department, in constant operation. The strain applied to various pipes is greater or less, according to the character of the work they are destined to perform. For gas, water, and steam pipes, they are all proved to a pressure of 300 pounds per square inch; for pipes destined for oil or artesian wells, or similar use, under circumstances where they will be subjected to unusual pressures, the strain which they are required to withstand in the testing machine is raised to 1000 pounds.

Tasker Iron Works.

In 1872, Mr. Thomas T. Tasker, Jr., and Stephen P. M. Tasker, who now compose the firm of Morris, Tasker & Co., determined to change the site of their principal manufacturing operations, and, with that view, purchased a tract of about 1000 acres of land at Newcastle, Delaware, on the Delaware river, and at the present time are engaged in erecting works of great magnitude there, to be known as the *Tasker Iron Works*. Twenty-five acres have already been built upon, and among the buildings there are two separate shops of brick, 281 by 143 feet, with slate roofs, 50 feet at the ridge, one brick and slate-roofed mill, 900 by 360 feet, and 200 six-roomed houses for the operatives, who will have the privilege of applying the rent towards the purchase. When the improvements projected at this point are completed, this will be probably the largest boiler-tube mill in the world, and will no doubt be visited and regarded with interest by many who will attend the Centennial Exposition.

There is now no establishment in the United States having facilities for producing tubes larger than 8 5/8 inches, but when the machinery which this firm are now erecting is finished, they will be able to manufacture tubes 12 inches in diameter.

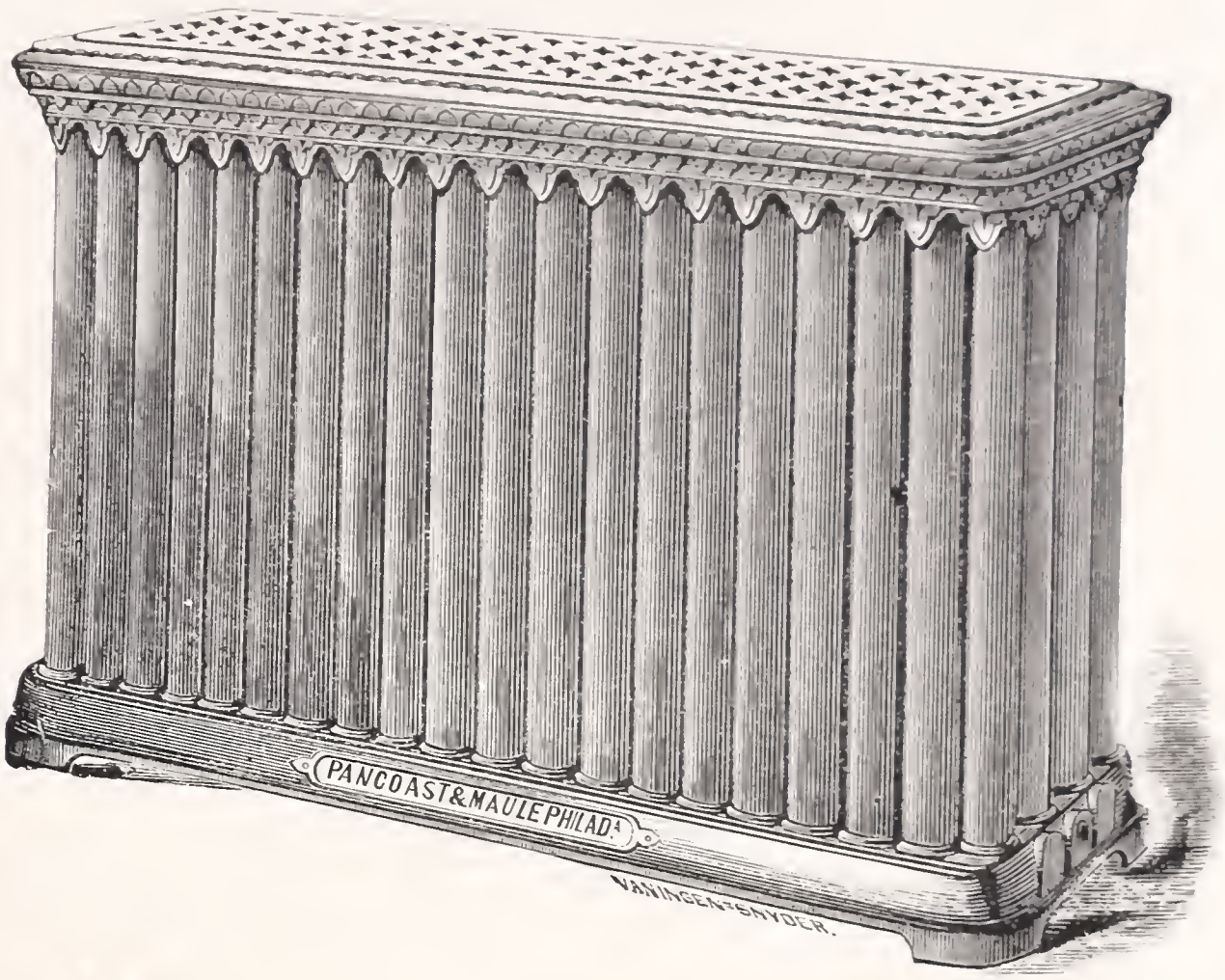
Rubber-Coated Iron Tubing.

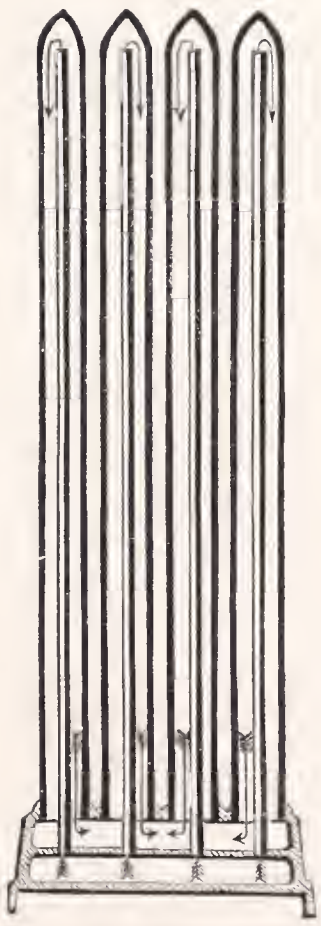
A novel article now manufactured at the Tasker Iron Works, and one which promises to become of great economical importance, is a *Vulcanized Rubber-coated Iron Tube*, designed to take the place of lead tubes, now extensively used for the conveyance of water, but against which, in many localities, a decided and well-founded prejudice exists, on account of insalubrious properties communicated by the reaction between the water and the lead of the pipes. By a peculiar process the rubber is baked on the iron under a heat of 400° Fahrenheit, and is absolutely indestructible, being, in fact, engrafted into the pores of the metal. Eminent chemists have tested its capacity to resist heat and cold, and have certified that it was not affected by boiling for several hours in Schuylkill water; that city gas, passed through it for three days, appeared to have no effect upon it; and that the rubber coating resisted firmly carbonic acid water, moderately diluted sulphuric and muriatic acids and caustic potash solution. A heat of not less than 400° is required to melt or soften the application, and this is a temperature attainable only in a blast furnace.

In the New England cities this pipe is coming into use, the Lowell City Water Works having already laid about 75,000 feet of the 3/4 inch size, while in the alkalic districts of the West it has been found eminently satisfactory.

PANCOAST & MAULE, 227 Pear Street. *Ely's Patent Throughway Valve, Improved Vertical Tube Regulators, Steam and Hot-Water Heating Apparatus, Wrought Iron Galvanized Pipes, Steam and Gas Fitters' Tools, Jenkins' Patent Globe and Angle Valve.*

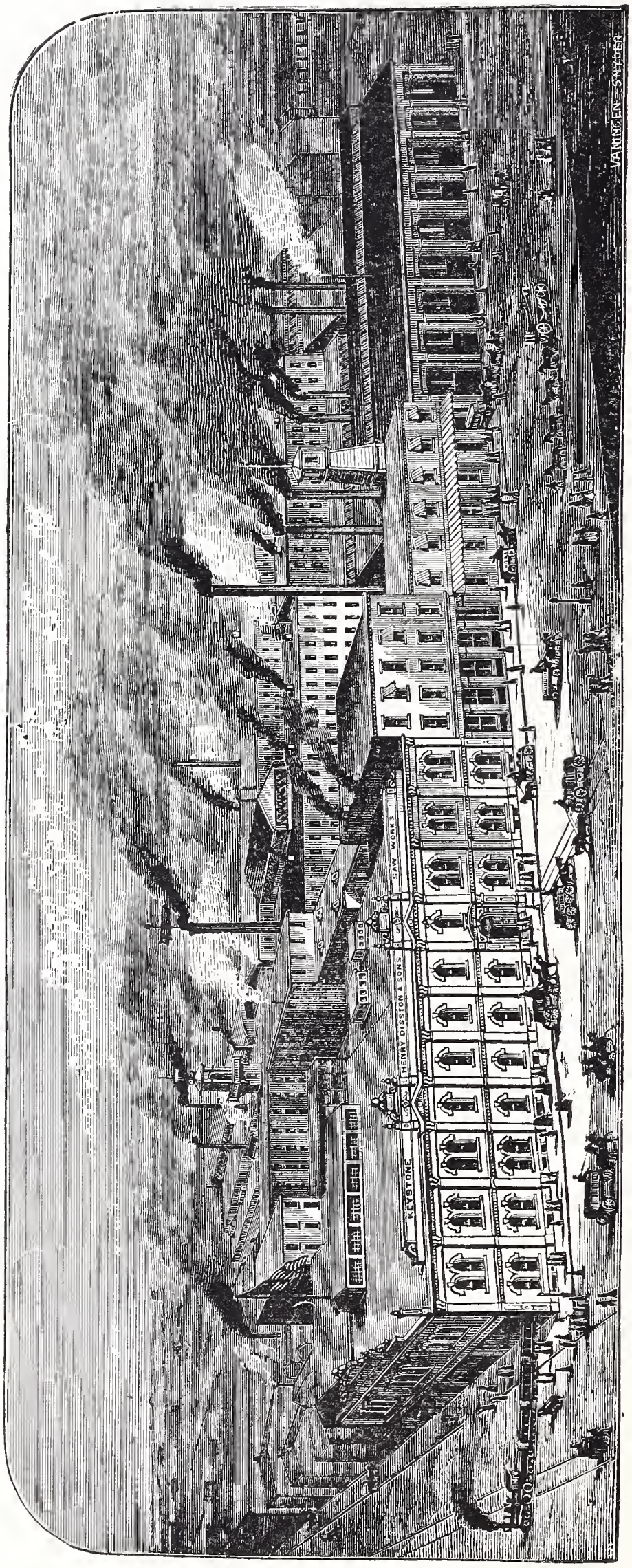
THE economical and effective heating and ventilating of buildings has of late years received that careful study which its vital importance demands.





The heating and ventilating apparatus of Pancoast & Maule, by means of steam or hot water, has been tested by many years experience in its application to domestic uses, and also to all the processes connected with manufactures in which steam is employed, drying houses for leather, wool, etc., etc.; as well as all varieties of coils and kettles for dye houses, soap factories, breweries and chemical works. As the result of its various application the heating and ventilating apparatus has proved itself in all cases to be in the highest degree both economical and effective.

They also claim great superiority for their *globe* and *angle valve*, assuring all who use steam that the composition of which this valve is composed will not stick to any kind of metal, hot or cold, and that a joint can be made and remain for years, and it will not adhere to the metal, and that this valve will remain perfectly tight under the pressure of steam, oils, acids, and gases, and that freezing will not impair its efficacy.



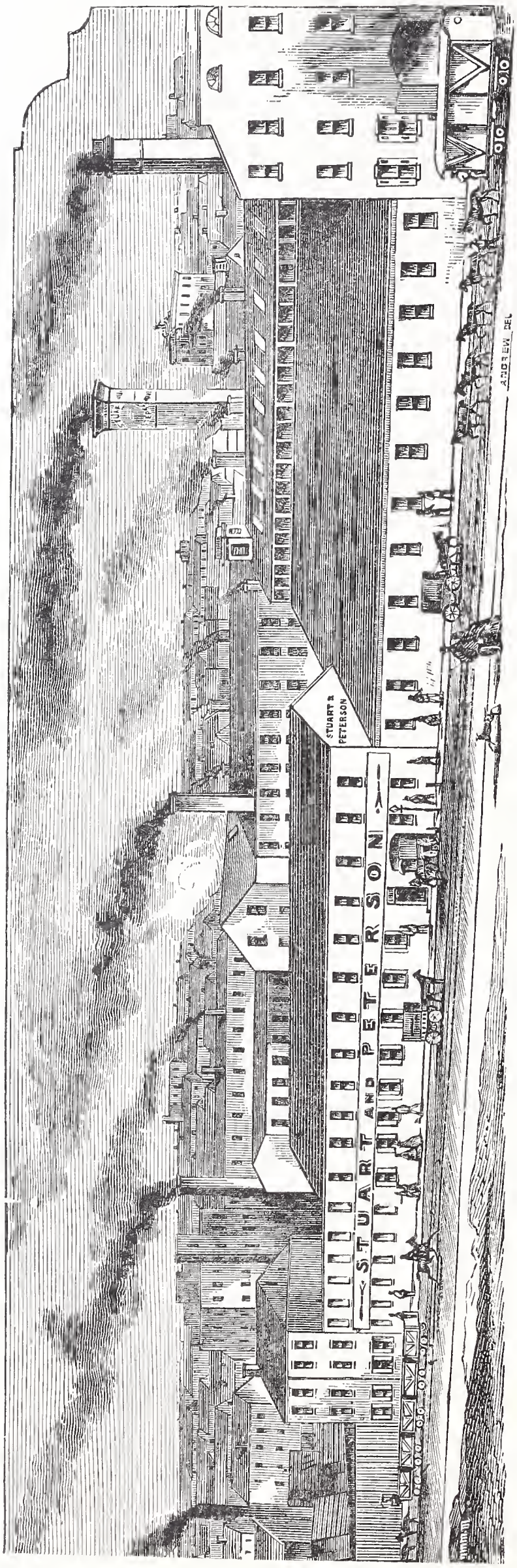
KEYSTONE SAW, STEEL, AND TOOL WORKS, Philadelphia; HENRY DISSTON & SONS, Proprietors.—*Saws* of every description, *Mowing Knives* and *Bars*, Plastering and Pointing *Trowels*, Steel-blade *Squares* and *Bevels*, *Files*, etc.

THESE works are the most extensive of their kind in the United States, and probably in the world. They usually employ over 1000 persons and supply one-fourth of all the saws annually required in the United States. The buildings, 67 and 69 Laurel street, cover an area of 250,000 square feet of ground, and comprise a rolling mill, 240 by 75 feet; a warehouse for the reception of raw stock, 120 by 70 feet; a machine shop and main saw factory, 200 by 100 feet, three stories in height; a wood-working department, 75 by 40 feet, four stories high; a blacksmith's, hardening, and file shop, and brass foundry, 200 by 100 feet; and sundry other buildings of less dimensions. In the lumber department, a stock of 300,000 feet of beech and apple wood for saw handles is at all times in process of seasoning. On the north side of Haydock street there is another building, 50 by 250 feet, three stories high, in which butcher knives, trowels, reaping knives, etc., are made.

All visitors of Mr. Disston's saw works agree that they have never seen any manufacturing establishment so vast in its proportions, and yet so interesting in its details. There is first a mill where the steel is made from the very best scrap that can be procured, such as old carriage-springs, and also a fine quality of blister bar iron. The average production of this mill is over forty tons per week. In this mill is one of Sellers' hammers, with lever and steam chest, which gives a stroke of 6 tons' weight, on which all blooms are made. Next to this is a brass foundry and the rolling mill, which contains four sets of rolls, respectively 26, 30, 32, and 66 by 24 inches, so that they can roll a plate 64 inches wide. The sheets of steel undergo three heats, after which the "scales" being removed each heat they are stored for future use. This mill enables Mr. Disston to fill in a few days an order for any saw of extraordinary size, that would otherwise have required months.

Passing to the cutting and shaping department, the visitor will notice a variety of labor-saving machinery, especially an *eccentric-geared power-press.* In the grinding department, there is machinery that will grind both sides of a saw at one operation, and long as well as short saws. These machines, it is claimed, are the only ones of the kind in use in the world. Next we come to the *tempering* department, where the uncut blades are heated to a cherry red, and then, by means of a frame platform, are immersed in wells of whale oil, in some cases nine feet deep, after which they are put into heaters having curious hydraulic presses which flatten the blades. The tempering process, which is patented, is most complete, and saves at least one-third the labor ordinarily required, or, in other words, sixty men can now perform as much work as one hundred formerly did. Mr. Disston has also a new process for stiffening saw blades, or, in other words, refining the grain after tempering by repeated blows of a steam hammer. The department in which the teeth are cut into the blades illustrates, perhaps, more strikingly than any other the advantages this establishment possesses in its labor-saving machinery. To tooth five dozen wood-saws in an hour is rapid work for the best mechanic in the world; Mr. Disston has machinery by which one man can tooth thirty dozen in the same time. By means of machines in use in these works, a sixty-inch circular saw can be toothed perfectly in two minutes, which, by the old process, would require the labor of one man two hours.

The sample room connected with this manufactory contains eighty different styles of carpenters' saws, circular saws, from 4 to 72 inches in diameter; lumbermen's saws, of all sorts and sizes; butchers' saws; saws for stone and iron workers; concave circular saws, for ripping out felloes for wheels, and the shaping of other convex woodwork; broad and narrow saws; long and short saws—in short, all the saws for which the ingenuity of man has thus far in the world's history found use, including saws combining plumb, level, and square, and graduated-tooth saws. This room presents a dazzling array of burnished steel, a counterpart of which no doubt will be seen in the Exhibition, and where it is certain that Mr. Disston will exhibit something more novel and remarkable than was ever before seen in the line of his manufacture.



STUART, PETERSON & CO.,

Manufacturers of Enamelled and Tinned Cast Iron Hollow Ware, Hard Ware Goods, Parlor and Cooking Stoves, Ranges and Heaters, etc.

[ESTABLISHED IN 1844.]

THIS firm has obtained a national celebrity for the manufacture of their wares. The works are located on Broad and Noble streets, occupying over two acres.

The visitor to this establishment will find a large assortment and extensive variety of cooking and parlor stoves, ranges and heaters of different kinds, and particularly the far-famed *Sunny Side Fire-place Heater*, in all which many late improvements have been made by them. This firm asks especial attention to their Iron Ware, Enamelled and Tinned by their new and superior process. In this particular they have so completely surpassed all competition that their articles of manufacture have a decided preference even in foreign markets. Attention is specially solicited to the following particulars, in which is claimed for the wares of Stuart, Peterson & Co. a marked superiority:

First. As to the capacity of the articles named. They will be found to contain fully twenty-five per cent. more than the quantity marked on them; a very important consideration to the purchaser and worthy of mention.

Second. Their patent process of moulding and casting the iron ware, which gives a beauty of finish and shape not excelled by any castings of the kind, either foreign or domestic.

Third. The ware for enamelling as well as that for tinning is annealed and the interior turned out bright by their automatic turning lathe, thus giving a clean porous surface to which the enamel adheres with great tenacity. This process adds to the cost of the ware, but its durability is thereby greatly increased.

The heat of the enamelling ovens is of surprising intensity; a temperature demanded by the absence of those deleterious oxides ordinarily made use of. In consequence of the purity of the resulting product, its tenacity and durability is so much increased that this ware is in great demand for chemical and culinary purposes.

Their patented improvement in bails and handles is also something that is highly appreciated.

Stuart, Peterson & Co. also manufacture a great variety of other cooking utensils; also scales, hardware goods and other articles, all of which, for style and substantial finish, cannot fail to command the attention of purchasers.

Their recent ingenious and important improvements in *Stoves and Heaters* will soon, no doubt, secure for these articles as prominent a place in the market as is now held by their beautiful enamelled and tinned wares.

The double illuminated Mica Section Sunny Side Fire-place Heater of 1874, made by this firm, combine all the best known principles of heating and economy. Their long experience and various experiments have enabled them to produce a fire-place heater unequalled for power, durability, beauty, efficiency, brilliancy, economy, and ease of management, consequent on simplicity of construction.

The Sunny Side gives one-third more heating surface in the lower room than other heaters, besides that by a peculiar arrangement of the hot air flues a great amount of heat is thrown to the front, when desired for heating lower rooms.

The large lower section mica windows give much additional brilliancy and cheerfulness, besides radiating a great amount of heat into the room.

The fuel magazine extends to the top of the heater, with capacity for twenty-four hours' supply of coal, and is protected by a patent double cover, which prevents the escape of gas and consumes it, and thus rendering puffings or explosion impossible; advantages possessed by no other fire-place heater in the country.

The clinkerless grate is an important improvement, it being easily cleaned and let down, ashes and clinkers removed without trouble, so that there is no need to let the fire out during the winter.

The patent hot air damper on the top of the heater controls the quantity of hot air for use of lower or upper rooms, other heaters being very inconvenient in this respect.

There are also three air chambers which keep up a brisk circulation of air through heated flues into the large hot air reservoir at the back.

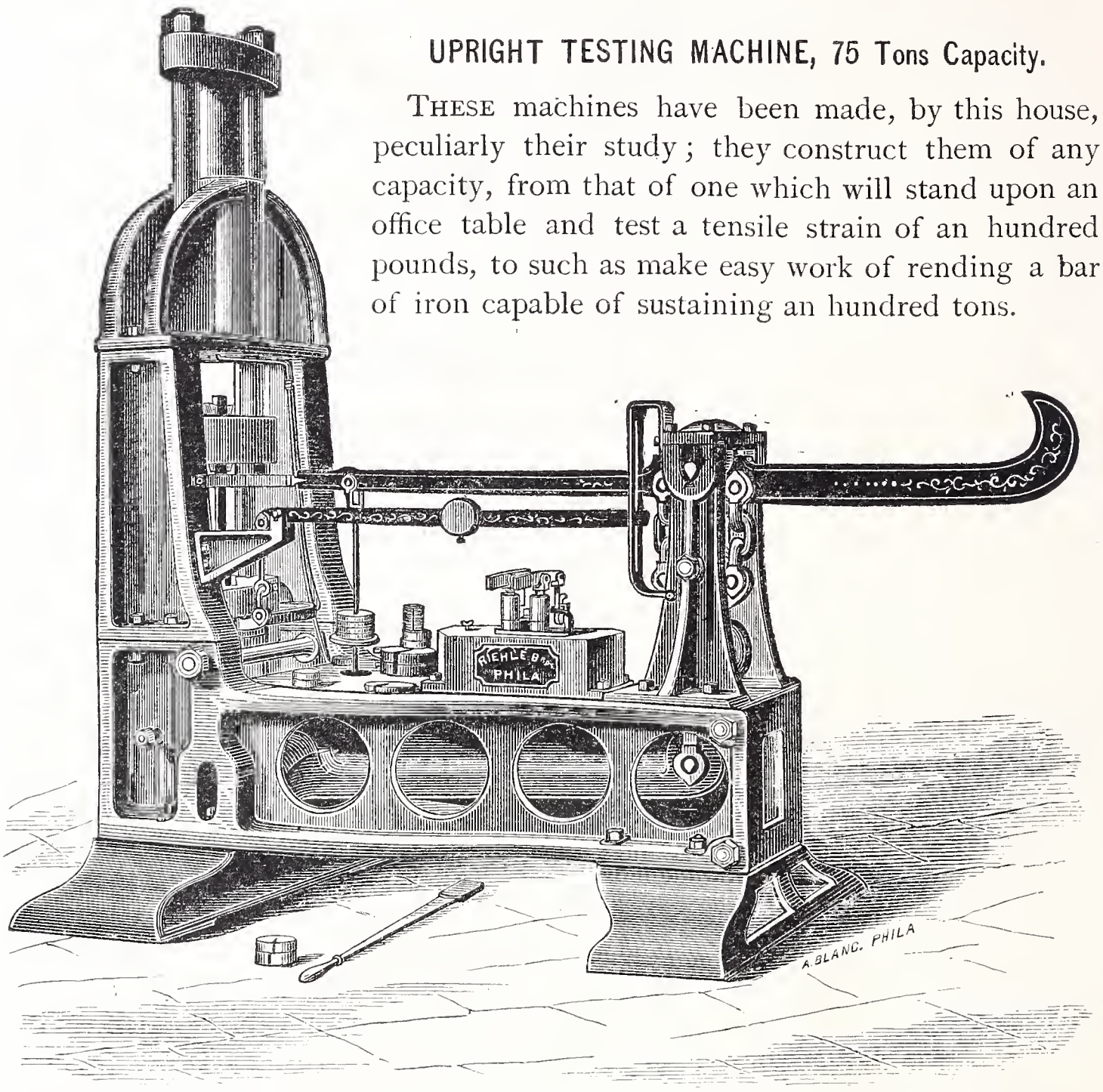
No side pipes are used in the Sunny Side, the air being heated in the double flued reservoir with double back.

There are many other points of convenience, durability, and economy, requiring an inspection of the heater before they could be fully understood.

RIEHLÉ BROTHERS' SCALE WORKS, 650 North Ninth Street, Philadelphia.—*"U. S. Standard" Scales, Long Railroad Track Scale, Furnace Charging Scale, Weighmasters' Beams, Canal Weigh Lock Scale, Patented Testing Machines.*

UPRIGHT TESTING MACHINE, 75 Tons Capacity.

THESE machines have been made, by this house, peculiarly their study; they construct them of any capacity, from that of one which will stand upon an office table and test a tensile strain of an hundred pounds, to such as make easy work of rending a bar of iron capable of sustaining an hundred tons.



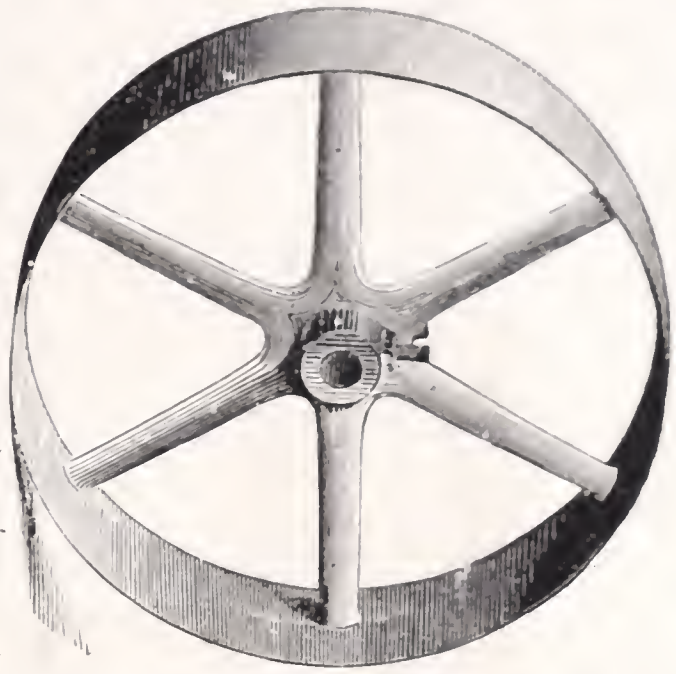
Extreme Height, 10 ft. Extreme Length, 10 ft. 11 in. Extreme Width, 5 ft.
Motion of Jack, 15 inches. Weight of Machine, 9,250 lbs.

The above illustration shows the machine with a specimen ready in position for the test. It will be seen that one end of test piece is secured by grips connected by means of crosshead to plunger of jack; the grips holding the other end of specimen communicate with the weighing beam by an intermediate lever, which shows through the frame (in the drawing). The plunger of jack being raised perpendicularly by the action of the pump operated by hand, tears apart the specimens, but in order to measure the force applied, the weighing beam is kept in equipoise by placing the weights on the weight dish. The force is required only to take up the slack, the strain is weighed and the piece broken by the weights being placed upon the weight dish of crane beam, which must be kept parallel by using the weights and power simultaneously. The other beam with weight on is only used to balance the intermediate lever and lower tools, so that their weight in no way interferes with the strain on the specimen.

The above machine can be modified to apply Crushing and Transverse tests to specimens, and altered to apply Tensile strains to longer pieces than 32 inches.

GEO. V. CRESSON, PHILADELPHIA SHAFTING WORKS.

Manufacturer of Shafting and its appurtenances, viz.: Pulleys, Hangers, Couplings, &c., &c.



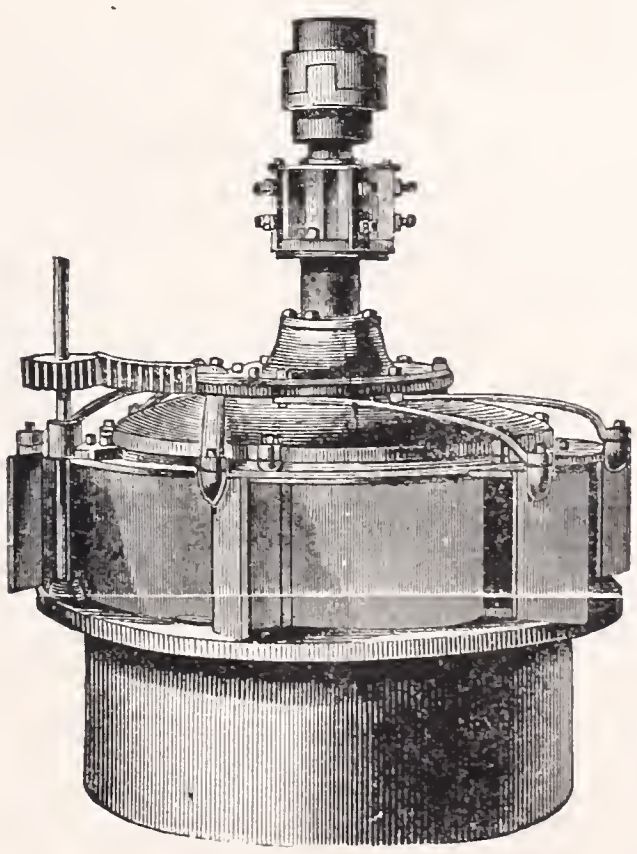
THESE works, situated at the corner of 18th and Hamilton streets, are well worthy the attention of all persons in search of excellence of workmanship and material in a matter where a defect in either entails disaster and great loss upon all whose work depends upon motive power. Mr. Cresson devotes time, research, and the highest mechanical skill, to the production of a perfect article in the line of his specialty, and a common attestation on the part of his patrons proves the success of his efforts.

His hangers, with ball and socket bearings and patent self-oiling attachment, are notable for perfect adjustment and easy working.

His Patent Internal Clamp Coupling and Internal Clamp Pulley, also the numerous other appurtenances used and introduced by this concern, all of which embrace the latest improvements, have contributed largely to the success of the establishment, and supplied a want long felt in this line of mechanical appliances.

GLOBE IRON WORKS. STOUT, MILLS & TEMPLE, Dayton, O.

American Improved Turbine Water Wheel and General Mill Machinery.



RECENT tests made by the eminent engineer, James Emerson, of Holyoke, Mass., demonstrate that the American Improved Turbines produce a higher average (83.14 per cent.) than any water wheel known. A 48 inch wheel, tested June 9th, 1872, produced as follows:

48 INCH WHEEL, TESTED JUNE 9TH, 1872.

PERCENTAGE OF PART GATE.					Per Cent. of Whole Gate.
¼	½	⅝	¾	⅞	
50.08	69.64	75.42	82.53	82.90	83.14

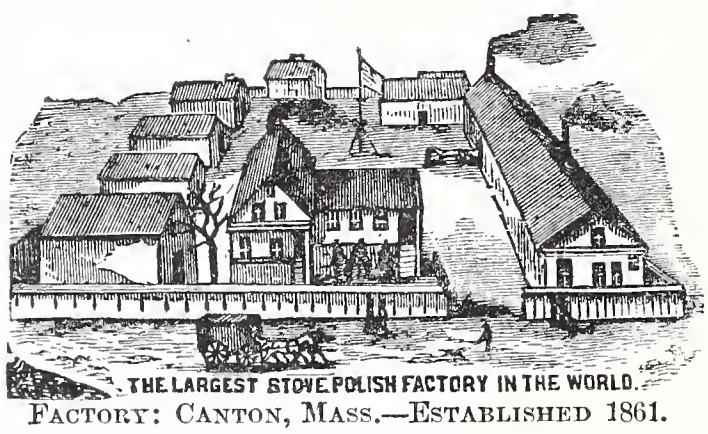
Mr. Emerson also says: "None of the turbines have ever given any trouble, and we have yet to hear of a dollar expended for repairs."

They desire agents for the sale of this wheel in all parts of the country, and send their water wheel catalogue, comprising full statement of tests of averages of power developed, when applied for.

RISING SUN BLACK LEAD WORKS, Canton, Mass.; MORSE BROTHERS, Proprietors.—Philadelphia Agents, WEIKEL & SMITH SPICE CO., 133 to 137 N. Front Street.—*Rising Sun Stove Polish, Rising Sun Lumber Pencil, Rising Sun Black Lead Lubricator, etc., etc.*

THESE works, situated at Canton, Massachusetts, about fourteen miles from Boston, on the line of the Boston & Providence Railroad, are said to be the most extensive establishment for the manufacture of stove polish in the world. The accompanying cut affords an idea of their general appearance. They comprise an area of two acres of ground, upon which stand a number of substantial buildings, including the grinding mill, the general factory, four large warehouses, for the storage of materials and manufactured goods; engine and boiler house, offices, stables, etc. The machinery is of the most ingenious description and is driven by a steam engine of fifty horse power. The manufacturing processes are peculiar to this establishment, and much of the machinery was designed by the proprietors.

The business was commenced in 1861, and has steadily increased in magnitude until the average production of stove polish is upwards of 10,000 packages per day. During 1874, there were sold 396 tons, 2,281,020 packages of the Rising Sun Stove Polish, the shipments for a single day having frequently reached the astonishing quantity of more than nine tons.



FACTORY: CANTON, MASS.—ESTABLISHED 1861.

The celebrity which this article has attained is solely due to its intrinsic merits. Its prominent points of superiority consist in the beautiful polish which it produces, with but very slight expenditure of labor; the durability of the lustre, absence of odor when heated, entire freedom from the creation of dust while using it, and the extremely moderate price at which it is sold.

The unprecedented success that has attended the manufacture of this article has called into existence a large number of imitators. Many of these have already been suppressed by the company by means of legal action, which should be a sufficient warning to all others who may infringe upon their rights, either by making or selling a spurious article, that they will be visited with the extreme penalty of the law.

Every package of the genuine Rising Sun Stove Polish bears the Company's Trade Mark, a half risen sun, which is duly copy-righted. This Company has a patent for the use of the word "Sun," single or in conjunction with other words as applied to the manufacture of plumbago.

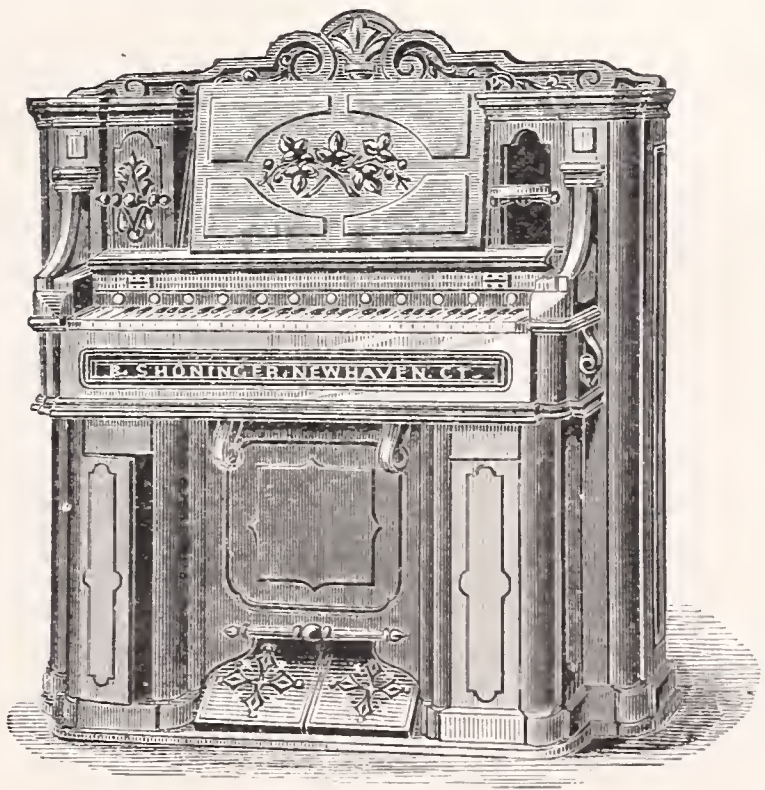
For the special accommodation of the stove trade this polish is put up in bulk, in 25, 50, and 100 pound packages, and will be found much cheaper and more effective than any other article of the kind in the market. Its very general adoption by stove manufacturers and dealers, in all sections of the country, is conclusive evidence of its unequalled quality.

The lubricating properties of plumbago are familiarly known, and no better preparation of the article can be found than the Rising Sun Black Lead Lubricator, which is extensively used by manufacturers, machinists, car builders, iron founders, etc. The purest Ceylon plumbago is used in its manufacture, and the admixture of three-fourths of a pound of the lubricator with a gallon of oil makes the latter wear four times as long as it otherwise would, and the combination is practically indestructible, being unaffected by any variations of temperature. The Company also prepare black lead for the use of piano and organ makers, shot manufacturers, founders, painters, etc.

The Rising Sun Lumber Pencil is an extremely useful article for lumber merchants and all parties who require a pencil for heavy marking. A fine quality of black lead is used in their manufacture, and the pencils are four inches long by one-half inch square. They will be found of most superior grade, and are sold at lower price than any other lumber pencil in the market.

It can in truth be here stated that this Company, in introducing their goods, never sought to gain public commendation for them except through their intrinsic merits alone. The result has justified the wisdom of their course, for without any adventitious aids, their goods have attained such popularity as was never before even approximated by any productions of a similar description.

B. SHONINGER ORGAN CO., Manufactory, 47 to 61 Chestnut St.; Warerooms, 279 Chapel St., New Haven, Conn.—*Cymbella, Eureka Grand Orchestral, Paragon, and Sunday School Organs.*



CYMBELLA ORGAN.

THIS Company, formed in 1860, has made and circulated about 40,000 instruments of the different kinds, and stands among the first in the country in quality and style, and has done much, perhaps the most, to improve the Reed Organ. At this time they are making instruments for all parts of the civilized world. Their production is about 100 per week. Persons making purchases of this kind of instrument are sure to find a good variety, and will receive a stool boxed with each, and may with perfect confidence depend upon prompt attention from a responsible and reliable company, with every desired guarantee as to workmanship and quality.

Visitors will find a full line of these instruments on exhibition.

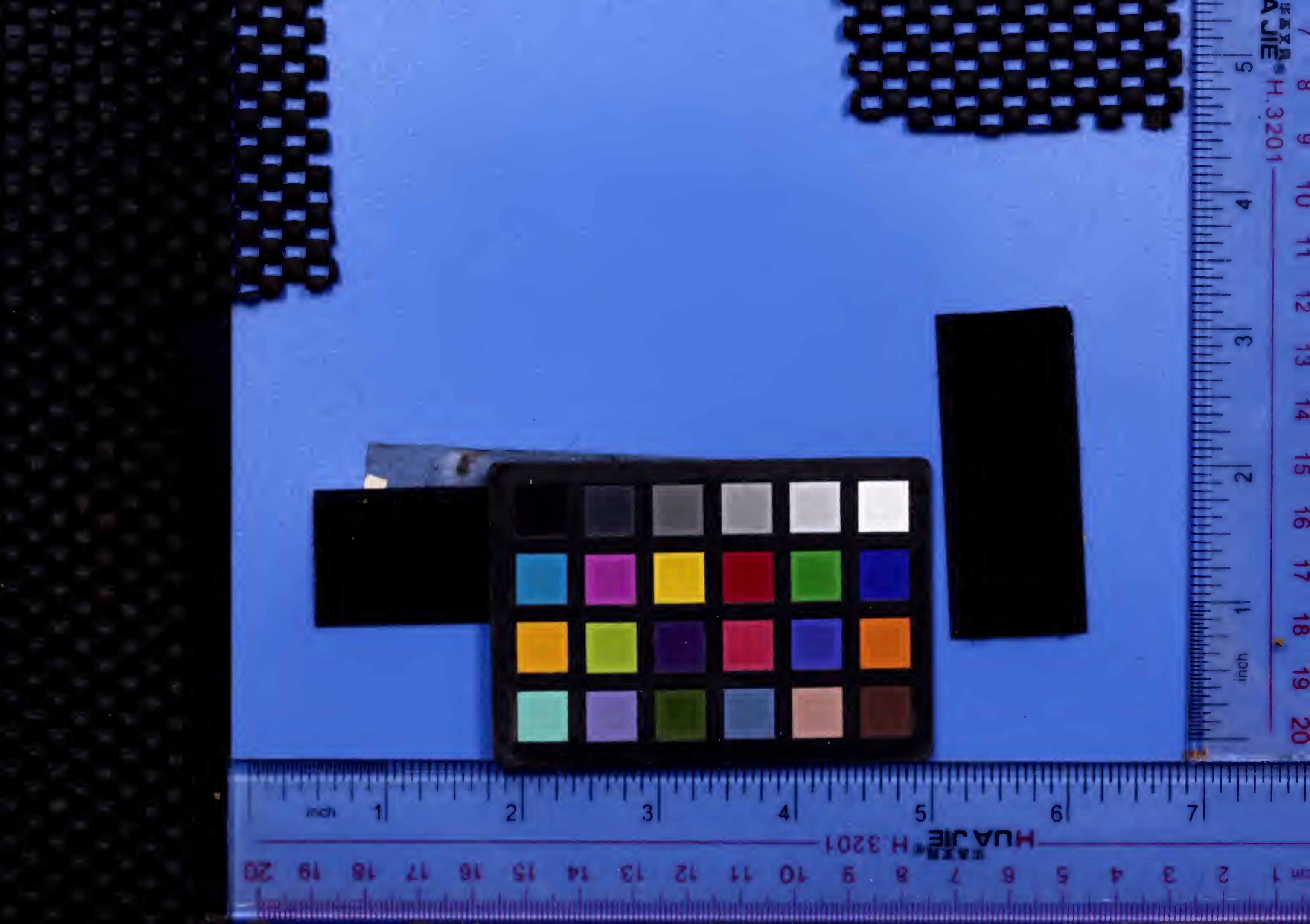
Philadelphia Agent, W. R. PHELPS,
927 Chestnut Street.

ROBERT WOOD & CO., Philadelphia.—*Bronzes and Ornamental Iron Work.*

ONE of the most gratifying facts in connection with the Centennial movement is the interest manifested by our whole people in the necessity and importance of commemorating in some fitting manner the deeds of those illustrious men of 1776 to whom we, as a nation, owe so much. Resulting from this desire to do honor to the "worthy dead," statues in bronze and marble will be erected in different sections of the Centennial grounds, not alone to the memory of our American heroes, but also to those "noble men of other lands"—Steuben, the German; Lafayette, the Frenchman; Montgomery, the Irishman; and Chatham, the Englishman—who, loving liberty, generously gave themselves and their treasure to found our free land. The Italians, with a patriotic impulse, have already arranged for a large memorial statue to the discoverer of our continent—Columbus. And in this connection it is truly a fact of national gratification that the necessity of sending to foreign lands for the execution of these "tributes to noble lives" no longer exists; for we are enabled, in our own country, to produce Bronze Statuary which, in perfectness of casting, coloring, and artistic fidelity of finish, successfully competes with the work of the most celebrated establishments of Europe; and for illustration we would refer to the bronze castings of Messrs. ROBERT WOOD & CO., 1136 Ridge Avenue, Philadelphia.

DESIGN OF THE EQUESTRIAN STATUE OF GEN. WINFIELD SCOTT, CAST IN BRONZE BY ROBERT WOOD & CO., PHILADELPHIA, FOR U. S. GOVERNMENT.

The above representation of a colossal equestrian statue of General Scott, ordered by the government of the United States, to adorn the city of Washington, is but one of the many artistic works which have already appeared from the foundry of Messrs. Wood & Co., who deserve great credit for the special attention paid to securing the most perfect results, and for their perseverance in establishing the first bronze foundry on this continent. Two of their productions, the Indian Hunter and Dog and the Statue of Shakspeare, are special objects of interest in the New York Central Park, while the Statue of General Sedgewick is well known to every visitor to West Point. Messrs. Wood & Co. will have on view in the Centennial Exhibition a complete collection of their productions, both in ornamental iron and bronze art, which will do us national credit.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